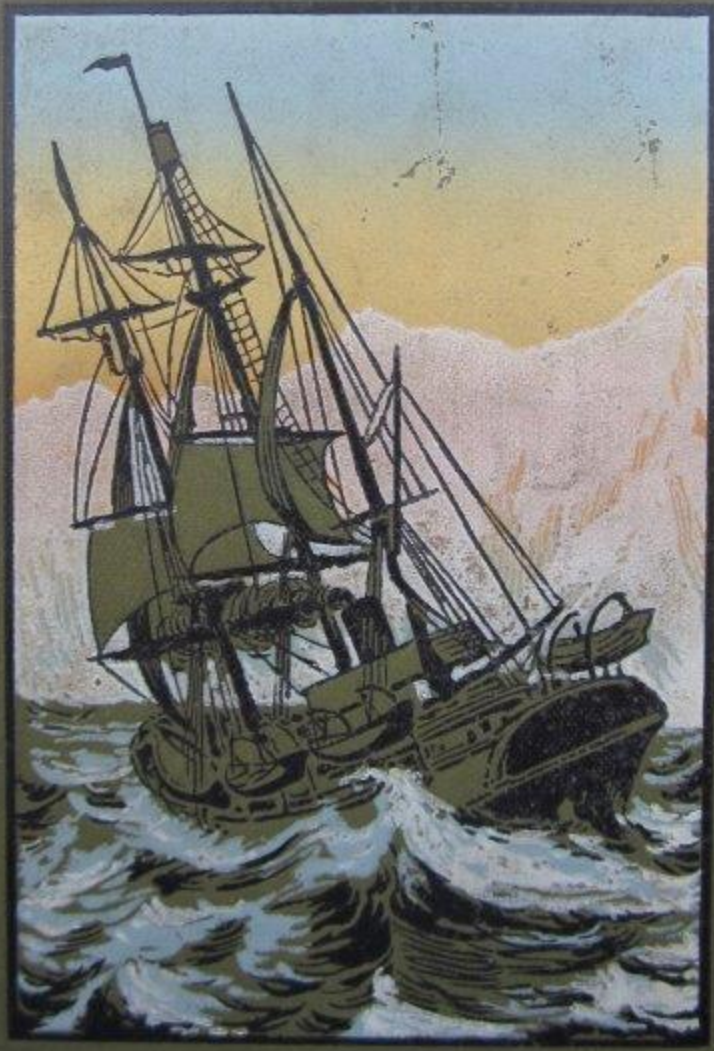
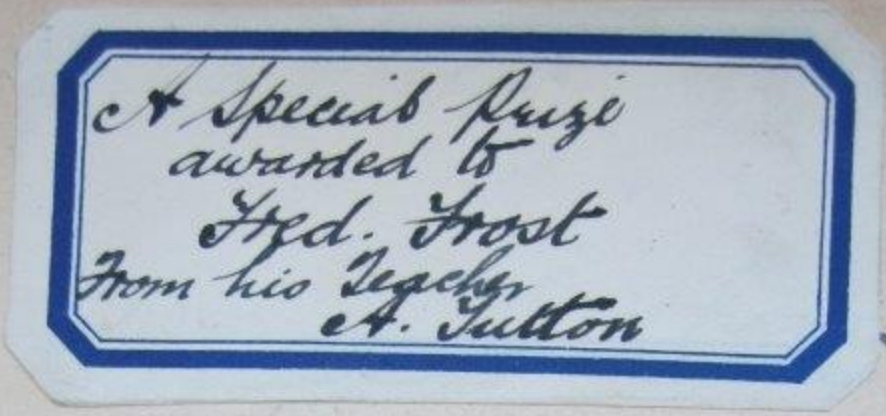
# STORIES OF SOUTH POLE ADVENTURE



FRANK MUNDELL




# STORIES OF SOUTH POLE ADVENTURE

THE "SOUTHERN CROSS" IN THE ICE. [*See p.* 98.
(*From a Photograph taken on 23rd Jan.* 1899.)

# STORIES

OF

# SOUTH POLE ADVENTURE

BY

FRANK MUNDELL

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"STORIES OF THE FIRE BRIGADE" "STORIES OF THE LIFEBOAT"

ETC. ETC.

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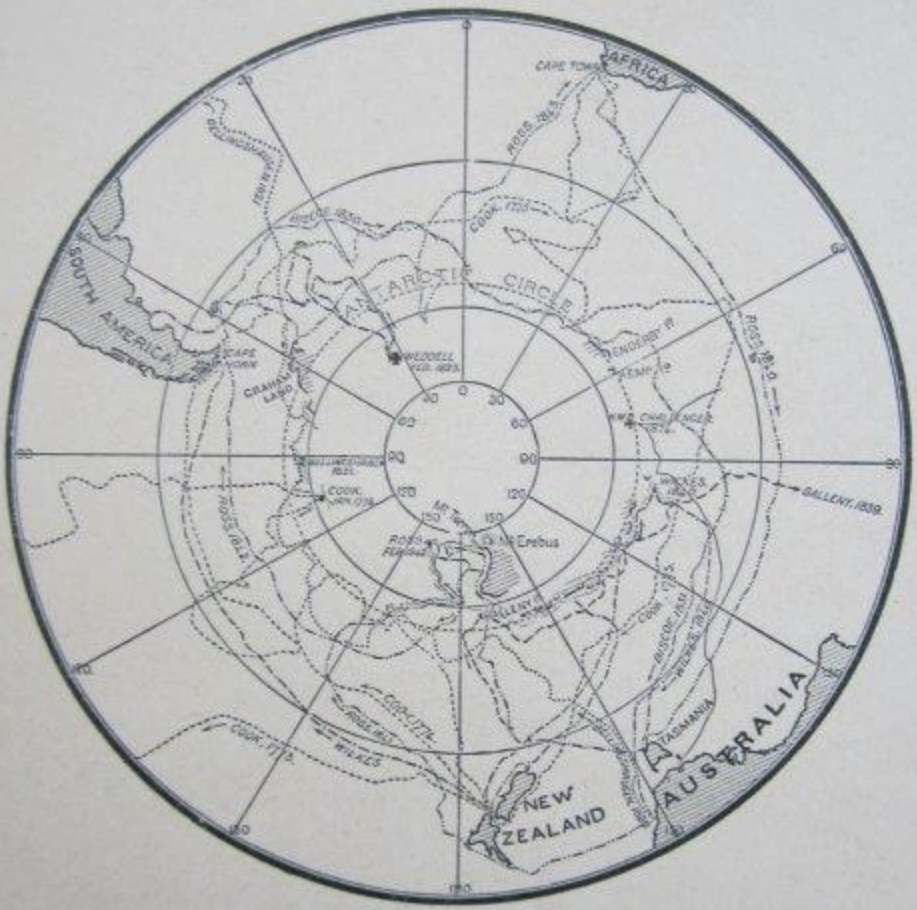



THE ANTARCTIC REGIONS.

"Yet even here Britannia's flag has thrown
Her shadow on the ice, and hailed the land her own."

# STORIES

OF

# SOUTH POLE ADVENTURE

## CHAPTER I.

### THE SOUTH POLE.

THE famous search for the North-West Passage led many daring explorers to penetrate into the unknown, and to brave the dread perils of the Arctic seas, that they might open up a new trade route to the Indies. The stimulus thus given to the adventurous spirit of the maritime nations resulted ultimately in revealing to the knowledge of the world the vast regions surrounding the North Pole.

Engrossed in the search, which repeated failures seemed only to make more attractive, explorers gave little heed to the mighty region of snow and ice at the other end of the world. This region, called somewhat

vaguely Southern Ethiopia and the Austral Continent, was shown on maps of the period as a large extent of land in the Pacific, stretching towards the South Pole, and the cartographers, making good the deficiencies of fact by imagination, adorned their efforts with representations of things which might reasonably be expected to be found there. On a globe dated 1534 mountains, rivers, and lakes are shown on an imaginary Antarctic Continent.

From the heights of our positive information we smile at such fanciful pictures, but they reflect truly enough the state of knowledge regarding the Antarctic in those days.

The first recorded approach to the Terra Australis Incognita, as the supposed Southern Continent was called on the maps of long ago, was made by a Dutchman named Dirk Gerritz in the year 1600. His ship formed part of a squadron intended for the East Indies, and the vessels having been separated by a furious storm near the Straits of Magellan, his ship was driven far to the south, where in the 64th degree of latitude he found a rocky, snow-covered coast, similar in appearance to that of Norway. When he told his story he was not believed, and it was not till the discovery of the New South Shetland Islands two centuries later that the statement of the hardy Dutch navigator was invested with the importance it deserved.

An early French navigator reported the discovery of land to the south-east of the Cape of Good Hope, and a French expedition was sent out under Kerguelen

in 1772 to explore it. He sighted land with high mountains in latitude 49° S. and longitude 69° E. Having sent a boat ashore to verify his observations, he promptly came to the conclusion that he had discovered the great Southern Continent, and returned to Europe to announce the important event. In France he was hailed as almost a second Columbus, and there seemed to be no end to the possibilities which this discovery had opened out. Funds were not wanting to equip another expedition, and he set forth again to complete his investigation of the Austral Continent, which, however, disappointed its discoverer by turning out to be an almost barren island. It now bears Kerguelen's name.

The question of the existence of a Southern Continent still continued to agitate the scientific world. During his first expedition Captain Cook demonstrated that there was no land in the Pacific north of the parallel of 40° S. Following up this knowledge, Cook undertook a second expedition in 1772 with the express purpose of settling once and for all the question of a Southern Continent. He navigated the whole Southern Ocean in such a manner as to leave no room for doubt that if such a continent existed it must be within the Antarctic Circle, and must be covered with perpetual snow and ice.

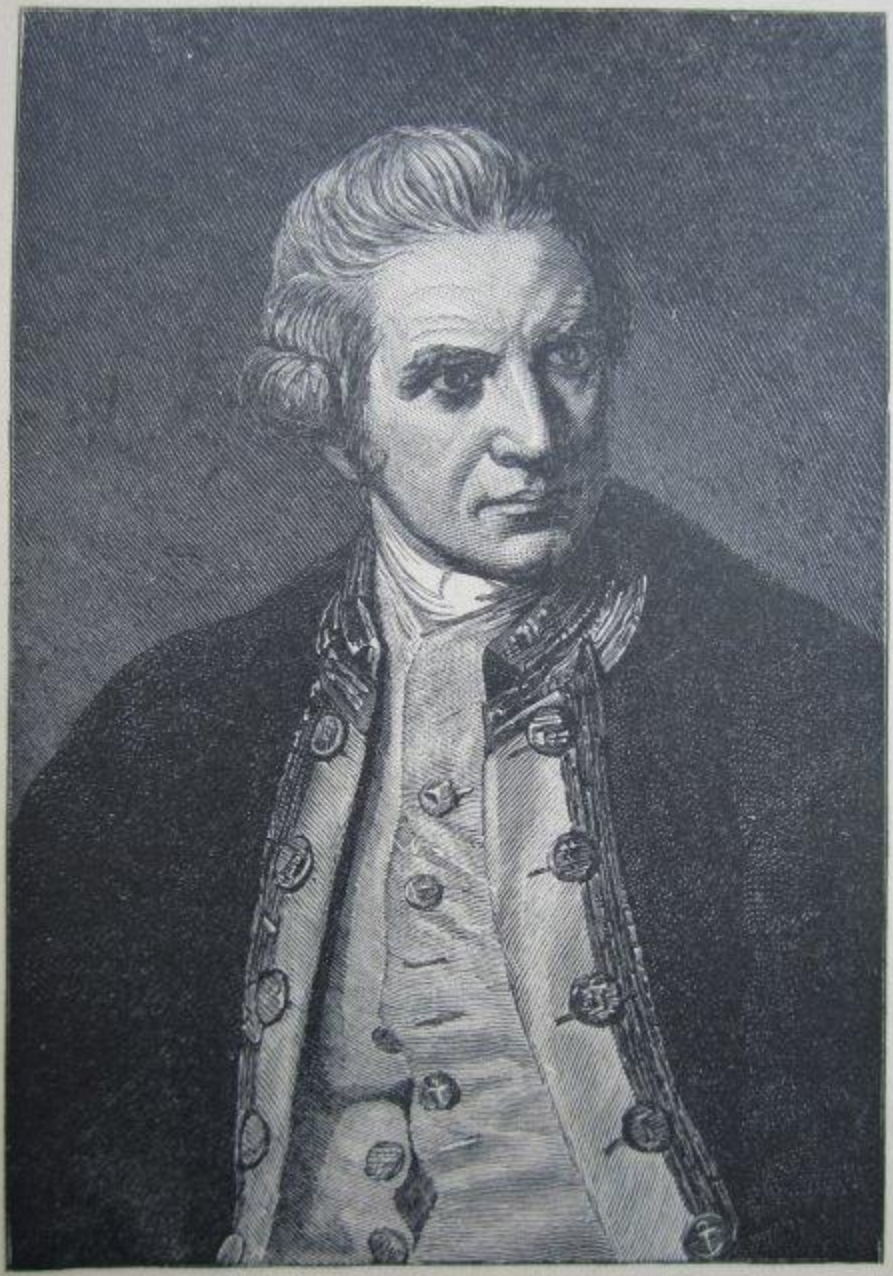
Cook reached latitude 71° 10′ S., and believed that there was a tract of land towards the South Pole extending farther north in the Atlantic and Indian Oceans. He says: "The greatest part of this Southern

Continent, supposing there is one, must lie within the Polar Circle, where the sea is so pestered with ice that the land is thereby inaccessible. The risk one runs in exploring a coast in these unknown and icy seas is so very great that I can be bold enough to say that no man will ever venture farther than I have done, and that the lands which may lie to the south will never be explored.

"Thick fogs, snowstorms, intense cold, and every other thing that can render navigation difficult and dangerous, must be encountered, and these difficulties are greatly heightened by the inexpressibly horrid aspect of the country, a country doomed by nature never once to feel the warmth of the sun's rays, but to lie buried in everlasting snow and ice. The ports which may be on the coast are in a manner wholly filled up with frozen snow of vast thickness, but if any should be so far open as to invite a ship into it she would run a risk of being fixed there for ever, or of coming out in an ice island. The islands and floats on the coast, the great falls from the ice-cliffs in the port, or a heavy snowstorm attended with a sharp frost, would be equally fatal."

Such, then, was the opinion of one well qualified to form a correct estimate and to pronounce a judgment free alike from self-seeking or the momentary gratification of notoriety or applause.

There were two navigators who ventured farther than Cook—Weddell in 1823 penetrated to 74° S., but saw no land; Sir James Clark Ross in 1841–42 reached



CAPTAIN COOK.

the 78th parallel and discovered Victoria Land. These three—Cook, Weddell, and Ross—were for many years the only explorers who passed beyond the 70th parallel of south latitude.

For long the Antarctic was left in undisturbed possession of the secrets hidden in the wilds of her icy solitudes. Now and again the report of some whaler, who, owing to the openness of the season, had been able to sail over a sea unencumbered with ice, gave rise to the idea of an open Polar sea, but this theory was soon obliterated by almost more certain evidence of the presence of land.

"What," says Sir John Murray, "is the nature of the snow and ice covered land observed at so many points towards the South Pole? Is there a sixth continent within the Antarctic Circle; or is the land nucleus on which the massive ice-cap rests merely a group of lofty volcanic hills?

"To my mind," he continues, "there seems to be abundant evidence that there exists in this region a vast extent of true continental land the area of which is greater than that of Australia, or nearly four million square miles."

The success of Nansen in the Arctic towards the close of the nineteenth century turned the minds of those eager for new worlds to conquer towards the south, and several expeditions were sent out equipped with everything that experience, knowledge, and wealth could supply. Each added something of value to what was already known, but none succeeded in accom-

plishing "the one remaining thing in the world by which a brave man may yet achieve fame and fortune."

Notwithstanding so many repulses, there can be no doubt that further efforts will be made to reduce the citadel of the White South. It does not stand to belief that this, the last fortress of the Ice King, will utterly and for ever defy the sons of those who in times past braved peril, privation, suffering, and death in every quarter of the globe, by swamp and desert, mountain and stream and sea, through torrid heat and icy tempest, or that they will yield in their endeavours till this, the last unknown region of the globe, lies open before mankind as a book that may be read.

## CHAPTER II.

### SOUTHWARD HO!

N the year 1819 a great impetus was given to Antarctic exploration, which had languished since the days of Cook, by the discovery of the South Shetland Archipelago, by William Smith, commander of the brig *William*.

While on a voyage from Monte Video to Valparaiso, he discovered land on the 15th of October in latitude 62° 30′ S. and longitude 60′ W. The next day a boat was lowered, and the landing party found themselves on a barren and snow-covered land. Seals were, however, abundant, and great was the sailor's regret that, having a cargo on board, he could not profitably follow up his discovery, but must needs make all sail to his destination. On his arrival he reported his discovery to the British Consul, and as a consequence the frigate *Andromache* was sent out under Captain Barnsfield to explore the land.

He found that the group of the South Shetlands, as they were named, consisted of twelve main islands and

innumerable rocks above water. They were subsequently explored by Weddell in 1820, who here captured a great number of sea elephants and fur seals. There was no vegetation found except a short, straggling kind of grass, and a moss similar to that found in Iceland. The highest and most forbidding-looking island of the group rose nearly 2500 feet above the level of the sea.

In the following year the South Orkney Islands and Trinity Land were discovered by Powell, and an American navigator named Palmer sailed along a stretch of coast west of Trinity Land, which now bears his name; and the Russian sailor Bellinghausen discovered to the south-west of Palmer's Land the region known as Alexander's Land. The most famous voyage of this epoch of South Pole exploration was that of Captain Weddell, who sailed from the port of Leith in September 1822, in command of the brig *Jane* of 160 tons, and the cutter *Beaufoy* of 65 tons burden. The brig carried a crew of twenty-two men, and the cutter thirteen, under Matthew Brisbane. Both vessels were fitted out in the ordinary way, and provisioned for two years.

They reached the Antarctic in January of the following year, and shaped their course to the south greatly impeded by fogs and icebergs. On the 27th they reached latitude 64° 58′, but could find no indications of land; then Weddell steered northward, thinking that land might be found between the South Orkneys and Sandwich Land. "Ice islands had now become their constant companions, and were so familiar as

to be little dreaded." During the night they passed very near an object that looked like a rock; soundings were at once taken, but the lead gave no bottom, so they lay to till daybreak showed them "a dead whale very much swollen through long immersion in the water."

On the 1st of February they stood to the south-east. "I had offered," says Weddell, "a gratuity of £10 to the man who should first discover land. This proved the cause of many a sore disappointment, for several of the seamen of lively and sanguine imaginations were never at a loss for an island. Fog-banks without number were reported for land; and many, in fact, had so much that appearance that nothing short of standing towards them till they vanished could satisfy us as to their real nature."

As they sailed along they were constantly accompanied by birds, and great numbers of finned and hump-backed whales were seen. On the evening of the 4th they were about 100 miles from Sandwich Land, and within such a distance of Cook's track as to be convinced that no land lay between. There was a probability, however, that a large tract might be found farther south, and so they steered in that direction. The crews were now beginning to feel the effects of the long-continued fogs and gales, which kept the decks of the vessels continually wet, and colds, agues, and rheumatism were the lot of all. To remedy this in some measure, Weddell ordered the ship's cooking stove to be moved below, and by keeping up good fires

managed to restore some degree of dryness and comfort to the men's quarters; and this, together with a little medicine, restored them to their usual health.

Land in the shape of a sugar-loaf was sighted on the 18th, but it turned out to be nothing but black ice: an island of clear ice lay near it, which made a contrast of colour that completed the deception. "The north side of the peak was so thickly incorporated with black earth that hardly any person at a distance would have hesitated to pronounce it a rock." Later in the day not a particle of ice was to be seen, but the sea was covered with blue petrels, and there were many whales about the ship. The weather was mild, and "had it not been for the anticipation of future obstacles in the passage through the ice, our situation might have been envied."

On the 28th the most southern point of the voyage was reached in latitude 74° 15′. Here Weddell decided to turn back, though he would willingly have continued his explorations towards the south-west. He remembered, however, that the season was already far spent, that a thousand miles of ice-strewn sea had yet to be navigated, and that the perils of his track would be further increased by fog and darkness; so he could not do otherwise than take advantage of the favourable breeze for returning. This hitherto unvisited part of the ocean he named, after the King of England, George the Fourth's Sea. Then having complimented the crew on their endurance and good conduct, and informed them that they were southward of the lati-

tude to which any former navigator had penetrated, the colours were hoisted, a gun fired, and both ships' companies gave three cheers.

All sail was then made to South Georgia, where the crews rested and refreshed themselves after their brief but arduous cruise amid the cold fogs and wet of the far south. This voyage added some 14 degrees of latitude to the extent of the known ocean.

Of all the names inscribed on the Antarctic, none more worthily holds its place than that of the brothers Enderby of London, to whom, it may be said, belongs the unique distinction of being the fathers of South Pole Exploration.

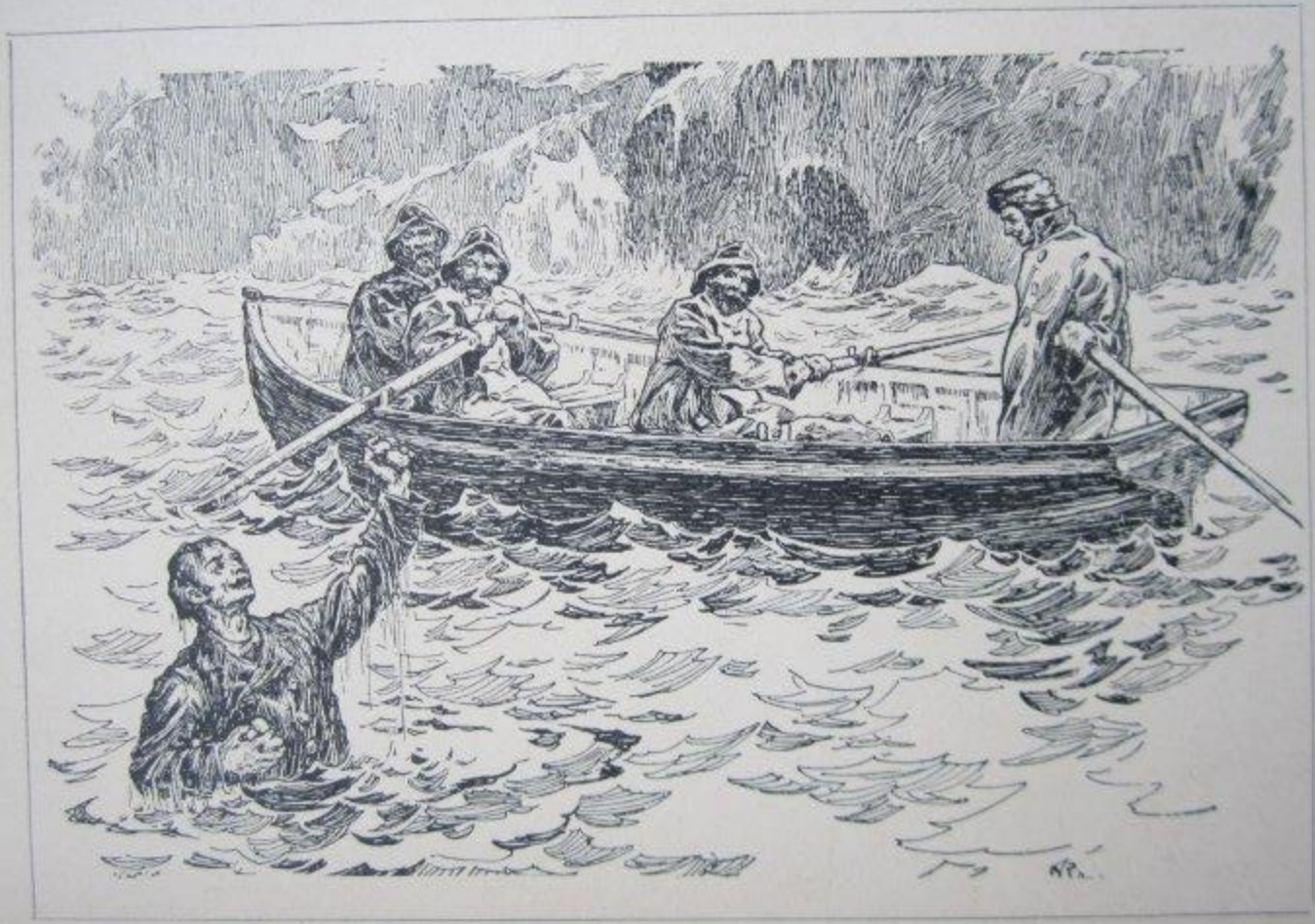
At a time when it was neither profitable nor fashionable to concern oneself with that forbidding region, they fitted out expeditions one after another to the southern seas, and at their own cost bore the brunt of the attack on the impregnable south. Indeed, but for their spirited enterprise it is very much to be doubted if our knowledge of the Antarctic would be what it is to-day. Graham Land, Kemp Land, Enderby Land, and the Balleny Islands were all discovered by ships sent out by these truly great and patriotic British merchants. They were the first to show the track by which others have come to honour and reputation.

It was one of their men who first set foot on the Antarctic Continent as far back as 1839. When Captain Balleny discovered the islands which bear his name, an attempt was made to effect a landing, which, however, was found impossible, owing to the precipitous

nature of the cliffs. Then it was that his comrade, Captain Freeman, jumped overboard up to his waist in water, and gathered a few stones from the sea-bottom. He was thus the first man to set foot on the Antarctic Continent.

Following in the track of these early voyagers came Wilkes, Dumont D'Urville, and many others. They, however, touched only here and there at the edge of the pack or on the islands and outlying portions of Antarctica, and for upwards of fifty years the exploration of its higher latitudes was left almost exclusively to sealers and some few enthusiastic men of science who took passage with them. In 1842 the American sealer Wm. G. Smiley proved that Palmer Island was not a part of Graham Land, and in 1874 this region was examined by Captain Dallman. He found that the coast was covered by a huge wall of ice some hundreds of feet high, and that there were few places where a landing could be effected. Skirting the coast were innumerable rocks and some lofty islands, and as he steered southwards he became convinced that the land was an archipelago, and not a continuous mass. As he pursued his investigations he found the land everywhere cut up by bays and inlets, and Trinity Land was discovered to consist of a number of islands.

In the same year the *Challenger* crossed the Antarctic Circle and proceeded as far southwards as 66° 34′, sounding and dredging as she went, but no attempt was made to reach a high latitude. Pack ice was



THE FIRST MAN TO SET FOOT ON THE ANTARCTIC CONTINENT.

reached on the 14th of February in latitude 65° 30′ S., and the ship sailed eastwards till it reached 94° 23′ E. At this point Wilkes' Termination Island should have been in sight; but though the weather was clear, and only fifteen miles intervened, no land was visible. As the American navigator had recorded it as only an appearance of land at a distance of 60 miles, it is probable that it has no existence.

The Antarctic summer of 1892–93 was spent by the Scottish whalers *Diana*, *Balæna*, and *Active*, and the Norwegian sealer *Jason*, under Captain Larsen, in the neighbourhood of Joinville Island and Louis Philippe Land. It was found that the southern portion of Joinville Island was cut off from the rest by a strait. To the new island the name Dundee was given, and the strait was called after the ship that sailed through it—the *Active*. At the end of 1893 Larsen was again in this region, and, sailing southwards, reached latitude 68° 10′. On the way land was visible in the west, to which he gave the name of Kong Oskar II. Land, while a lofty mountain, the Jason Berg, partially free of snow, stood out conspicuously in the promontory of Cape Framnas. At the northern extremity of the new-found land a number of islands were found, of which two were active volcanoes. To the west the sea was open, except for the ice. At the same time Captain Evensen in the *Hertha* sailed down the coast of Graham Land as far as 69° 10′ S. latitude, and sighted Alexander I. Land.

The Norwegian whaler *Antarctic*, in command of

Captain Kristensen, sailed to Victoria Land in the summer of 1894–95. Cape Adare was visited, and a good view obtained of the coast. Of the twenty glaciers in the neighbourhood, one seemed to be covered with lava, and it was noticed that a volcanic peak 8000 feet high bore marks of recent activity. A landing was made on Possession Island, where a lichen was found —the first vegetation seen within the Antarctic Circle. This same lichen was subsequently gathered at Cape Adare, the first spot on the Antarctic Continent ever trodden by man.

## CHAPTER III.

### UNDER THE STARS AND STRIPES.

THE United States of America joined with the maritime nations of the Old World in the exploration of Antarctica, and in 1837 sent out an expedition consisting of four ships—the *Vincennes*, *Peacock*, *Porpoise*, and *Flying Fish*—under command of Captain Charles Wilkes of the American Navy.

Leaving Sydney towards the end of the year 1837, and favoured by fine weather, they made good progress towards the goal of their ambition, and early in the following year encountered their first iceberg. Its dimensions are colossal, being given as a mile in length and 180 feet in height. Others were subsequently seen which, though not so large, invariably exhibited the same characteristic features—being flat-topped, much worn by the sea into cavities, and showing enormous fissures, as though on the point of being rent asunder.

On the 16th of January 1838 the ships were in

longitude 157° 40′ E., all within a short distance of one another, when an object, "large, dark, and rounding," was seen in the distance. It resembled a mountain, and was in great contrast to the icebergs, which were light and brilliant. "I watched for an hour," says Wilkes, "to see if the sun in his decline would change the colour of the object. It remained the same, with a white cloud above, similar to that hovering over high land. At sunset the appearance remained the same. I am thoroughly of opinion it is an island surrounded by immense fields of ice."

During the night the ships frequently tacked to gain as much southing as possible. Just before daylight the fog was so dense as to render everything obscure, even at a short distance, and as he knew they must be close to the ice, the captain proceeded with the utmost caution. The ship moved rapidly through the water, and was much tossed about, when suddenly all became perfectly still and quiet. So sudden, indeed, was the change, that many were wakened from sound sleep, and all knew, even from the brief experience they had had, that the sudden stoppage of noise and motion indicated that the ship had run within a line of ice, an occurrence from which the fear of great and impending danger is inseparable.

The watch was called to be in instant readiness for any and every emergency, and with straining eyes looked ahead to give warning of the immediate sight of the barrier. The ship still moved rapidly along, and some faint hope remained that they might be

approaching a deep bay, where they should be enabled to satisfy themselves as to the actual existence of land. "The feeling is awful and the uncertainty most trying, thus to enter the icy barrier, blindfolded as it were by an impenetrable fog, and the constantly recurring thought that both ship and crew were in imminent danger. Yet I was satisfied that nothing could be gained but by pursuing this course. On we kept, till it was reported to me by sharp-eared listeners that they heard the low and distant rustling of ice. Suddenly a dozen voices proclaimed the barrier to be in sight—just ahead.

"The ship, which a moment before had seemed unpeopled from the great stillness of all on board, was instantly alive with the sailors hurrying to their stations to bring her to the wind, which was unfavourable to a return on the same track by which we had entered. After a quarter of an hour the ice was again made ahead, and the full danger of our situation was realised. The ship was certainly embayed, and though the full extent of the sea-room to which we were limited was rendered invisible by the dark and murky weather, yet that we were closely circumscribed was evident from having reached the ice so soon on either tack, and from the audible rustling around us. It required several hours to extricate the ship from this bay."

On the following morning the sailors were surprised by the sight of a ship apparently about a mile off. A signal was hoisted and a gun fired, but the stranger took no notice, and was soon after lost to sight. In

the afternoon, the *Peacock*, in charge of Captain Hudson, came up, and on being questioned her captain replied that he had not seen the *Vincennes* in the morning, and Wilkes says, "I should be disposed to think that the cause of her image appearing so close to us in the morning was produced by refraction above a low fog-bank."

Wilkes now desired Hudson to make the best use of his time in exploring, and not attempt to keep company with the other ships. Sailing on, the *Vincennes* reached a deep bay, in which the water was of a dark olive green colour and had a muddy appearance. Land was now visible in three directions—south, south-east, and south-west, in the first direction most distinctly—and a nearer view convinced the most experienced sailors on board that it was indeed land that could be seen. It had the appearance of being about 3000 feet high, forming a sort of amphitheatre, and looking grey and dark, and divided into two distinct ridges or elevations throughout its entire length, the whole being covered with snow. The sun and moon were both above the horizon, each throwing its light abroad, the moon being nearly full. The sun illuminated the icebergs and the distant land with deep golden rays, while the moon in the opposite horizon tinged with silvery light the surrounding clouds.

During the next few days the character of the ice underwent a complete transformation. There was hardly any field-ice but numerous tabular-formed icebergs. Some of these were of colossal proportions,

EVERY MOMENT THE SITUATION BECAME MORE CRITICAL.

varying in height from 150 to 200 feet high, and with sides smooth as though they had been chiselled. Others again showed lofty, many-coloured arches leading into deep caverns open to the swell of the sea, which, rushing in, produced a noise like distant thunder. The flight of birds passing in and out of these caverns put the explorers in mind of ruined abbeys and castles, while here and there a bold projecting bluff resembled some Gothic keep. A little farther onwards a vast fissure would be seen, as if some giant force had rent in twain these mighty masses. Every noise on board, even the men's voices, reverberated from the massive and pure white walls.

"These tabular bergs are like masses of beautiful alabaster, which it is difficult to describe, but if an immense city of ruined alabaster palaces can be imagined, of every variety of shape and tint, and composed of huge piles of buildings grouped together, with long lines of streets winding irregularly through them, some faint idea may be formed of the grandeur and beauty of the spectacle."

On the 18th Hudson steered the *Peacock* into the bay which Wilkes had found closed the day before, and saw the same appearance of high land in the distance. The water was much discoloured and of a dirty dark green. Soundings were taken and were obtained at 500 fathoms, the line at this depth showing traces of a blue, slate-coloured mud.

A few days afterwards the ship was encircled with bergs and icefields, and met with a mishap which, but

for the cool courage, ready resource, and prompt discipline of officers and men, would almost certainly have ended in disaster. The ship was at the time rapidly entering the ice, and came in contact with a floating piece, which gave the rudder a bad twist and rendered it useless. Every effort to steer by the management of the sails failed; still she drove on in this helpless condition, and scarcely a moment passed that she did not receive some fresh shock in one part or another, and each blow threatened destruction. In the hope of finding some means of temporarily repairing the damage, a stage was rigged over the stern, when the rudder was found to be so badly damaged that it could not be repaired without unshipping it.

Every moment the situation became more and more critical, surrounded as she was by masses of floating ice and heading straight towards an immense iceberg. All else having failed, Wilkes decided to try and bring her head round by hanging her to an iceberg by the ice anchors. This was promptly tried, and seemed about to succeed when the ship took a start so suddenly astern that the rope was dragged out of the men's hands, and the *Peacock* drove stern foremost into the huge masses of ice, striking the already disabled rudder and rendering it useless.

The efforts to extricate the ship were redoubled, for the wind began to freshen and the floe ice to set towards it. The sails were furled and spars were rigged up and down the sides to act as fenders. Boats were lowered to plant the ice anchors in a large floe, and

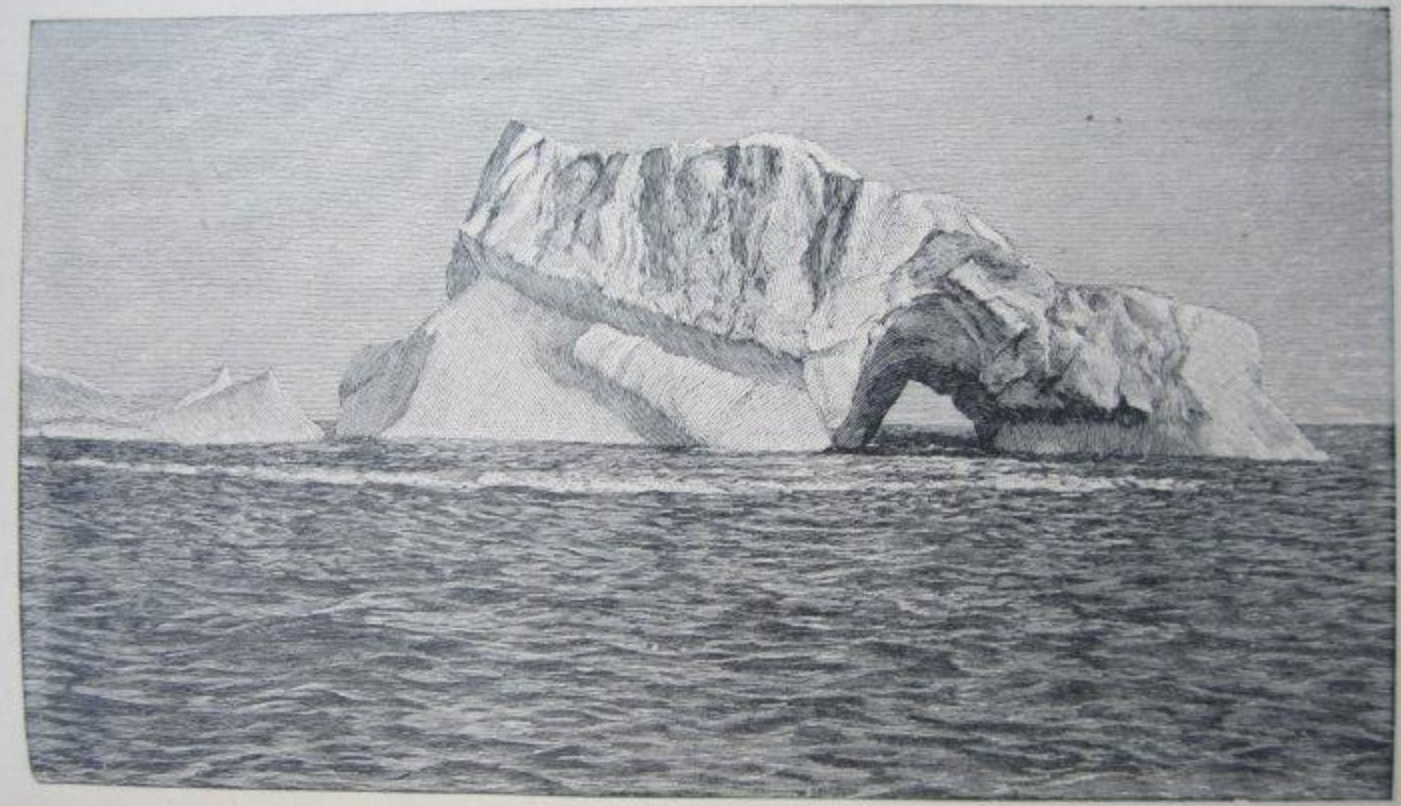
this for a time held the ship; but the pressure of the ice closing around dragged them from their hold, and once more she was at the mercy of ice and sea. It was an extremely critical moment, and seldom have the skill and self-possession of a commander been more urgently summoned for prompt action. The ice anchors just at this moment got hold again, and the peril seemed past, but at the same moment the whole body of ice to which they were fastened gave way, and the ship, freed from all restraint, bounded backwards and went nearly stern foremost crashing against the iceberg. Fortunately the contact was followed by a rebound which, with the help of the sails, carried her clear. She only escaped in the nick of time, for she was not many yards away when a huge block of ice and snow fell behind her, which, had it landed a few moments sooner, must have splintered her timbers.

Although clear of the berg the danger was still very great; the weather had an unusually stormy appearance, and the destruction of the ship with all on board seemed almost inevitable. They had in prospect the melancholy alternative of being frozen to death, or perishing by the dissolving of the iceberg on which they must take refuge in the event of the vessel sinking. She was labouring heavily in the swell, with ice grinding and thumping against her on all sides; hardly a moment passed that something was not carried away; even the anchors lifted, and every timber seemed to groan.

Meanwhile the boat's crew that had planted the ice anchor were in equal if not greater peril. The

grinding and grating of the ice as it rose and fell on the waves made the utmost precautions necessary to prevent the boat being crushed or swamped; and even when, after two hours of constant labour at the oars, the ice anchors were planted, the danger of returning to the ship was exceedingly great. At length the sailors saw a chance, and decided to avail themselves of it, perilous though it was—by passing between two bergs just sufficiently separated to allow them to steer through. They rowed with all speed, as needs they must, for the bergs were closing fast. A few strong pulls brought them to the rapidly narrowing opening. They entered, but before half the distance had been covered the bergs closed in, crushing the boat severely and pressing her under so that she almost filled with water, and was on the point of sinking when the bergs stopped and slackened. It was only for a moment, but in that flash of time the boat was pushed through, and in safety regained the ship.

On board, the sailors were working with might and main to repair the damaged rudder, while the ice gathered round the motionless ship closer and closer. There was but one, and a remote, chance of safety—to force the vessel through to the clear sea beyond by steering her with the sails. This plan was at once put into operation, but, as if determined to render all their efforts futile, the sea became rougher, and larger masses of ice were hurled against the bows of the ship, making her quiver like a thing of life from stem to stern. Presently it was found that the sternpost had



AN ICEBERG IN THE ANTARCTIC OCEAN.

suffered severely from the action of the ice masses, and as a last chance of saving the ship and crew it was decided to drive her out. Every stitch of canvas was accordingly set, and the breeze proving favourable, they succeeded in making their passage among and through the ice, and so to clear water.

After working continuously for twenty-four hours the carpenters succeeded in repairing the rudder sufficiently to answer its purpose, so the ship was hove to and the rudder was put into position. This having been safely accomplished, they made sail to get out of the bay by the only possible exit, the small opening, not more than a quarter of a mile wide, by which they had entered. At two o'clock in the morning, in the midst of a blinding snowstorm, the passage was safely made.

It now became necessary to consider their next course. The ship had sustained so much damage as to be practically useless if not positively unsafe for further work among the ice, so after consulting his officers and pointing out to them the various damages the ship had sustained, and the necessity of proper repairs before the vessel could be regarded as seaworthy, he invited their opinions as to making any further explorations. They were unanimous in their decision that a return to the north was imperative, and so the course was shaped for Sydney.

After the departure of the *Peacock*, the *Vincennes* and *Porpoise* sailed westward, and after passing through a remarkable group of tabular icebergs, found a large

stretch of open sea to the southward. Thither they steered, noticing an appearance of land both to east and west. At midnight they reached the solid icy barrier which prevented all approach to the land, if such indeed it was, so they were obliged to return. This spot received the name of Disappointment Bay.

On the following day Wilkes was surprised to find that one of the officers had marked on the log slate an opening of clear water at the bottom of the bay, and he therefore determined to go back over the 40 miles they had just travelled to put the matter right. This was accordingly done, but when they reached the spot no opening could be found.

Still steering westward, the ships passed close along the weather side of several icebergs, and distinctly heard the roar of the surf dashing against them. "On the 28th of January the cold was intense," says Wilkes, "the obscurity very great, and several of the men were exhausted. We were swiftly dashing on, for I felt it necessary to keep the ship moving rapidly through the water to enable her to steer and work quickly. Suddenly the cry from many voices, 'Ice ahead,' rang out, to be followed an instant later by a shout of 'Ice on the weather bow,' then 'Ice on the lee bow.' All hope of escape seemed in a moment to vanish. Return we could not, as large ice islands had just been passed to leeward, and we dashed on blindly, expecting every moment the inevitable crash."

What follows cannot be more picturesquely described than in the words of the dauntless commander himself.

He says: "The ship in an instant, from having her lee guns under water rose upright, and so close were we passing to leeward of one of these huge ice islands that our trysails were almost thrown aback by the eddy wind. The helm was put up to ease the ship off, but the proximity of those under our lee made me keep off. All was now still except the distant roar of the wild storm that was raging behind, before, and above us. The ship continued her way, and as we proceeded a glimmering of hope arose, for we had accidentally hit upon a clear passage between two large ice islands, which in fine weather we should not have dared to attempt. The suspense endured while making our way between them was intense but of short duration, and my spirits rose as I heard the whistling of the gale grow louder and louder before us as we emerged from the passage. We had escaped an awful death, and were again tempest-tossed."

Many were the dangers of that terrible night, and early in the following morning they were thankful to heave to in a small open space to recover from the fatigue and strain of nine hours of deadly and continuous danger. At noon the gale was over, and they made sail once more. On the following morning, 30th January, the sun rose in great brilliancy, and it was impossible to realise that the peaceful waters over which they sailed were the same as had been distorted with violent fury only twenty-four hours previously. "A straight line could not have been drawn in any direction from the ship without passing through a

dozen icebergs in the same number of miles, and all on board marvelled how they could have escaped them in the tempest."

Shortly afterwards land came in sight, and the explorers, steering in the direction, approached with difficulty within half a mile of some dark volcanic rocks, beyond which land entirely covered with snow rose to a height of 3000 feet and extended east and west for a distance of fully 60 miles. "I gave the land the name of the Antarctic Continent," says Wilkes. Following up this discovery, he steered to the southward, finding the land everywhere lofty and bounded on all sides by perpendicular icy cliffs. Day after day they coasted along this land, and at one point the ships approached within a mile and a half of the barrier, and a landing was effected on an iceberg covered with stones, gravel, sand, and mud. A large number of these stones were collected and carried off as trophies to commemorate the discovery of the "Antarctic Continent."

Bearing away to the westward again, they sailed on till the 17th, when the barrier was seen extending in a line ahead running north and south as far as the eye could reach. As progress westward was thus cut off they were obliged to put about. Wilkes now took occasion to review his position before making up his mind as to his future course, and after taking into consideration the health of the crew, the almost certain perils and hardships they would yet be called on to endure, and the all-important fact that the ship was

hardly in a state fit to encounter severe and protracted weather, together with the recollection that nearly 3000 miles of tempestuous and uncertain ocean lay between him and the next port, decided him to return to the north.

"I had seldom seen so many happy faces," says Wilkes, "or such rejoicings as the announcement of my intention to return produced. But although the crew were delighted at the termination of this dangerous cruise, not a word of impatience or discontent had been heard during its continuance. Neither had there been any occasion for punishment, and I could not but be thankful for having been able to conduct the ship through so difficult and dangerous a navigation without a single accident with a crew in as good, if not better, condition than when we first reached the icy barrier. For myself, I indeed felt worse for the fatigue and anxieties I had undergone, but I was able to attend to all my duties, and I considered myself amply repaid for my impaired health by the important discoveries we had made and the success that had attended our exertions."

The homeward voyage was begun to the accompaniment of strong north-westerly gales and snow squalls, and the Aurora Australis gave the returning voyagers a magnificent display of its beautiful and novel southern lights. "Black clouds were passing rapidly over the sky, an orange glow of light seemed to cover the heavens, emanating from a point over which flitted rays of colour directed towards the horizon, lighting up the edges of the clouds and throwing them into bold relief.

The rays seemed to dart simultaneously towards the horizon, on reaching which they would seem to be gathered as if by magic towards the centre and slowly vanish, to reappear and fold up."

The last iceberg was passed in latitude 53° S., and from this point our interest in the actual voyage ends. We cannot, however, leave them till they reach port. As warmer latitudes were reached the health of the men rapidly improved, and their spirits rose in proportion as they were able to dispense with layer after layer of the heavy clothing which had been indispensable in the far south and was now fast becoming intolerable. No incident worthy of record marked their passage to Sydney, which was reached on the 11th of March. Here they found the *Peacock*, and great was their astonishment to learn that her stern had been chafed by the ice to within two inches of her wood ends, and that the whole ship was badly strained. The fact that she had managed to reach port in safety was little short of a miracle.

The explorers' last week in the Australian city was spent in a round of pleasure in strange contrast to the scenes of peril and hardship they had so recently passed through.

## CHAPTER IV.

### THE HERO OF ANTARCTIC EXPLORATION.

THE greatest and most important expedition that ever sailed into the Antarctic was that commanded by Captain, afterwards Sir, James Clark Ross. He it was, as readers familiar with our *Stories of North Pole Adventure* will remember, who planted the flag of his country on the North Magnetic Pole. The chief objects of this expedition were to make magnetic observations in the southern hemisphere, to determine the position of the South Magnetic Pole, and if possible to reach it. The vessels chosen for this arduous service were two ships of the Royal Navy, small, but of stout build, and specially strengthened for this voyage to withstand the perils and shocks incident to navigation in the circumpolar seas—they were H.M.S. *Erebus* of 370 tons, and H.M.S. *Terror* of 340 tons. The former was commanded by Ross and the latter by Captain Crozier, and each ship carried a crew of sixty-four picked men.

The end of September 1839 saw the ships fairly embarked on their voyage, and on the 12th of the following May cast anchor near the entrance of Christmas Harbour in Kerguelen Island. The 17th, being Sunday, was observed as a day of rest. "It was our invariable practice," says Ross, "every Sunday to have a short service, and it is remarkable how very seldom during the period of our voyage either the severity of the weather or the circumstances of the expedition were such as to interfere with the performance of this duty.

"Few could have had more convincing assurances of the providential interposition of an Almighty God, and I do believe there was not an individual on either of the ships who did not regret when we were unavoidably prevented from assembling for the purpose of offering up our prayers and thanksgiving to our Almighty Guide and Protector."

Having completed their magnetic observations on the island, the explorers set sail for Tasmania, and after an uneventful run reached Hobart Town, where a magnetic observatory was established. Thence they sailed on the 13th of November 1840 to begin the real work of the expedition. As the ships ploughed their way southwards every soul on board felt confident of success, for never before had an expedition set out so well found in every particular with means to accomplish the end for which it was sent. Men and material were alike excellent, and as the commander himself says, they had "nothing to desire, but the guidance

SIR JAMES ROSS.

and blessing of Almighty God, without which all human skill and courage must prove utterly unavailing."

During the day of the 21st of December—the mid-summer day of these regions—the temperature never rose above 40 degrees, and on the 26th there was continuous snow and rain accompanied by a strong gale. The state of the weather had, however, no effect on the spirits of the crews, who celebrated Christmas with the usual festivities of the season, such as their friends were enjoying in perfect comfort at the other side of the globe. On the following evening the first Antarctic icebergs were seen, and it was noted how great was the difference in appearance between these and those of the Arctic Sea. Unlike the northern iceberg, they presented no variety of form, being generally large and solid, with perpendicular sides and tabular summits. Some of those now seen varied in height from 120 feet to 180 feet, and several of them were more than two miles in circumference. As the ships advanced the streams of ice became more numerous, and in a short time a line of ice could be seen from the masthead. This was the edge of the pack, and was reached just after the ships had crossed the Antarctic Circle. New Year's Day was celebrated in appropriate fashion by serving additional provisions to the crews, and by presenting to each man of both ships a complete suit of warm clothing. Mutual congratulations and good wishes were exchanged by officers and men, and the day was spent in the usual way.

To signalise the advent of the year 1840, an iceberg hove in sight with a large piece of rock on it, and nearly covered with mud and stones. A boat was lowered to procure specimens of the rock, which proved to be of volcanic origin, and must have been many tons in weight. A few days later snow ceased to fall, and a splendid sun dispelled the fog, lighting up the numerous icebergs and clothing them in all the colours of the rainbow. At noon the latitude was taken and found to be 65° 22′ south, and in the evening threatening clouds were seen in the north-west, with hard, rugged outlines and bright reflections of light from their more prominent points. The setting sun also presented a remarkable appearance. "It was streaked across with five horizontal dark bands of nearly equal breadth, and flattened into a most irregular form by the greater refraction of its lower limb as it touched the horizon." The peculiar purple colour of the vapour exactly opposite the setting sun was also noticed.

From the masthead on the 5th of January the pack appeared to be sufficiently open to admit the ships, and Ross decided to make a bold dash on this formidable barrier, and force his way through. The signal was accordingly made to the *Terror*, and then selecting the apparently most favourable point to break through the outer edge of the pack, which was formed of much heavier ice than the rest, the ships bore away before the wind, and after an hour of hard thumping forced their way into some small holes of water connected by narrow lanes. At noon ice was all around the

ships, and from the masthead clear water could not be seen.

Choosing the clearest channels and forcing the intervening barriers, the ships pursued their course through the ice, proving, by the way they encountered the violent ice shocks, how admirably they had been fortified for such a task. In the evening a remarkable appearance of land was reported. During several hours a number of pointed hills, apparently covered with snow, were seen, having an appearance so calculated to deceive the inexperienced observer that, as Ross says, "had we been prevented from proceeding farther, it would doubtless have been asserted on our return to England that we had discovered land in this position. This appearance of land, however, was nothing more than the upper part of a cloud, marking, by a well-defined but irregular line, the limit to which vapour can ascend in these latitudes.

"Below is vapour in every degree of condensation; above, the cold, clear space, which vapour can never attain. It is always near the margin of the ice that these appearances of land are most remarkable and most deceptive. It proved a useful lesson to some of our new hands, who could not be persuaded it was not land until we had actually passed over the place of their baseless mountains."

Many whales, seals, and numerous birds were seen. The penguins followed the ships, answering the calls of the sailors who imitated their cry, and although they could not scramble over the ice as fast as the

ships sailed past it, they proceeded rapidly enough when they got into the water, and a flock of them followed in the wake of the ships, playing about like so many porpoises. A strongly marked water sky to the south-east gave the explorers hopes of being able to reach an open sea at no great distance, but the ice was so close that it was found to be impossible to force the ships through it. They were therefore obliged to heave to in a small hole of water, out of which they could not escape to the southward until the ice broke up. During the next three days they were constantly on the alert to take advantage of the first puff of a favouring wind, and in this way they advanced, step by step, several miles into the pack. At length a fresh breeze sprang up, and by its help they forced their way rapidly onward, succeeding eventually in reaching a clear sea. Fog and snow were still about them, and they were in great peril from a violent storm, which, when it had spent itself, left the explorers in latitude 70° 23′ S., to contemplate a cheering and extensive view of unencumbered sea—not a particle of ice being visible in any direction from the masthead.

Ross now shaped his course in the direction of the South Magnetic Pole; but as the ships advanced, a strong land-blink appeared on the horizon. On the 11th of January land was sighted, rising in lofty snow-covered peaks at a distance of about 100 miles, and a nearer approach revealed other mountainous ranges extending right and left of that first discovered, to the loftiest summit of which the name Mount Sabine was

given. On nearing the land, they steered towards a small bay, the southern promontory of which they named Cape Downshire and its northern point Cape Adare. To the north-west of this latter prominence a group of rocks was seen, showing their black tops among the white foam of the breakers. These were named Dunraven Rocks.

"It was a beautifully clear evening," writes Ross, "and we had a most enchanting view of the two magnificent ranges of mountains, whose lofty peaks, perfectly covered with eternal snow, rose to heights varying from 7000 to 10,000 feet above the level of the sea. The glaciers that filled their intervening valleys, and which descended from near the mountain summits, projected in places several miles into the sea, and terminated in lofty perpendicular cliffs. In a few places the rocks bore through their icy covering, by which alone we could be assured that land formed the nucleus of this to all appearance enormous iceberg."

The range of mountains extending to the north-west was named Admiralty Range, and its principal points were named after the Lords of the Admiralty. "This land," says Ross, proudly and with perfect justification, "restored to England the honour of the discovery of the southernmost known land, which had been nobly won by the intrepid Bellinghausen and for more than twenty years retained by Russia."

Ross and Crozier, with several of their officers, set out in a boat intending to land, but the shores of the mainland were found so completely covered with ice

projecting into the sea, and so heavy a surf was beating along its edge, as to make landing impossible. After some difficulty, and at no little risk, they succeeded in landing on an island, and in the name of Queen Victoria took possession of these newly discovered lands. The island was named Possession Island, and no kind of vegetation was found on its rocky surface. It was not, however, without inhabitants, for "inconceivable myriads of penguins completely and densely covered the whole surface of the island, the edges of the precipices, and even the summits of the hills, attacking us vigorously as we waded through their ranks, and pecking at us with their sharp beaks, disputing possession, which, together with their loud, coarse notes, and the insupportable stench from the deep bed of guano, which had been forming for ages, and which at some period may be valuable for the agriculturists of our Australian colonies, made us glad to get away again after having loaded our boat with geological specimens and penguins."

After a long and heavy pull they regained the ships, and hardly were they on board than a thick fog came on with a strong northerly breeze, which, had they delayed their departure only a few minutes more, would have prevented their return to the ships. Next morning a strong southerly gale was blowing, with thick weather, and they stood to the eastward in a state of great anxiety and watchfulness, not sorry, however, to find the ship labouring in a heavy sea, as this was a certain indication of a great space of open

water to windward, in the direction in which their hopes were centred.

A magnificent range of mountains, which had been seen some days before, now attracted their attention. The weather was beautifully clear, and they formed a grand and magnificent spectacle. They were completely snow-covered right up to their well-pointed summits, 12,000 to 14,000 feet above. They were named after the eminent philosophers of the Royal Society and the British Association, at whose recommendation the Government had been induced to fit out the expedition.

About this time an incident occurred, really trifling in itself, but interesting as showing how necessary to the explorer are the qualities of unceasing vigilance, painstaking thoroughness, and whole-hearted devotion to duty, which may be said to constitute genius. Ross was busily engaged on deck with some survey work when he caught sight of what seemed to be an island, but which had not been in sight only a few hours before. It was about 100 feet high, and the whole of the summit and one side were perfectly free from snow. At the same time it was noticed that a large iceberg, which had been distinctly seen about the same locality, had disappeared. The obvious conclusion was, therefore, that here was a lofty island from one side of which the snow had slipped, leaving the natural surface exposed, while, as a matter of fact, what had really happened was that the iceberg originally seen had turned over unnoticed by anyone on board, and pre-

sented a new surface covered with earth and stones. So exactly was it like an island, that nothing but landing on it would have proved its real nature had it not been for this explanation, and a rolling motion of the berg, which continued for some time.

On the morning of the 15th, when distant about 30 miles from the land, it presented a remarkable appearance. A bank of dense clouds concealed the lower part of the mountains, and their snowy-pointed summits alone were seen above, the cloud contrasting strongly with the beautifully clear sky, and conveying to the mind an idea of elevation beyond their real height.

A favourable breeze now sprang up, and Ross steered a more southerly course, and portions of land opened to view as the ships proceeded under full sail with a favouring breeze. "The scene was most animating and cheering," says Ross. "The harassing, tedious, and laborious work of contending against adverse winds and weather were forgotten in the full expectation we now enjoyed of soon passing into a higher latitude than had ever before been attained. Few on board either of the ships closed their eyes that night, so great were the anxiety and excitement.

"Fog and snow limited the view for some hours, but on the 21st, while waiting for clear weather, a mountain was discovered, apparently the highest which had yet been seen. It bore a striking resemblance to Mount Etna, and was so distinguished for several days till Ross gave it the name of Mount Melbourne.

"The ships had often to contend against a northerly current which, together with a southerly wind, carried them back to the northward. Now, again, the wind fell calm, and the people on board could do nothing but watch the gradually retrograde movement of the ships. The night of the 22nd was the most beautiful that had been seen in these latitudes. The sky was perfectly clear and serene, and at midnight, when the sun was skimming along the southern horizon, the sky overhead was a most intense indigo blue, becoming paler in proportion to the distance from the zenith."

At noon on the 23rd the ships, having recovered their southern position, were in latitude 74° 20′, and in the evening, having good grounds for believing that they had reached a higher southern latitude than had ever yet been attained, the occasion was made one of general rejoicing. They were now from all reckonings within 250 miles of the Magnetic Pole, and the more sanguine among them already saw the success of the voyage assured. What, however, was more interesting to Ross than such idle speculations was the view he obtained of Mount Melbourne and Mont Eagle, which were seen to great advantage; the immense crater of the former and the peaked summit of the latter rose high above the surrounding mountains, forming two of the most remarkable objects of this wonderful and magnificent mass of volcanic land.

The cold was now so intense that the spray was frozen as it fell on deck, and soon accumulated such a

load about the bows as to keep two men continually employed in clearing it away. At noon on the 27th an island was discovered in latitude 75° 48′, and named after Sir John Franklin. This island, which is entirely composed of rocks, is twelve miles long and six broad. The northern side presented a line of dark precipitous cliffs between 500 and 600 feet high, marked with broad white bands, which gave a strange aspect to the cliffs. No vegetation of any kind was discovered, not even a lichen or a piece of seaweed, so that, as Captain Ross remarked, the vegetable kingdom has no representative in Antarctic lands. The white petrel and the rapacious skua gull had their nests on the ledges of the cliffs, and several seals were seen.

With a favourable breeze, and in very clear weather, the ships sailed to the southward to investigate some land which had been in sight since the previous day. It proved to be a mountain, 1240 feet above the sea-level, emitting smoke and flame in great profusion. That there should be an active volcano in so high a southern latitude was a discovery indeed, to which the navigator gave the name of Mount Erebus. To the eastward was another volcano 10,900 feet high, and it was called Mount Terror. These mountains belonged to a mainland which, as the ships approached, presented a low white line as far as the eye could reach to the eastward.

This proved to be a perpendicular cliff of ice, flat and level at the top and without any openings or promontories on its seaward face. Nothing could be seen

beyond it but the summit of a lofty range of mountains extending to the southward as far as the 79th degree of latitude. These mountains were named after Captain Sir W. E. Parry. This obstruction was a great disappointment to all because, instead of proceeding

MOUNT EREBUS, DISCOVERED BY ROSS'S EXPEDITION.

southward, the course had to be altered to the eastward. The whole coast from the western extreme point now presented a uniform vertical cliff of ice about 300 feet high. The eastern cape at the foot of Mount Terror was named after Commander

Crozier of the *Terror*, and the western promontory at the foot of Mount Erebus was named Cape Bird, after the senior lieutenant of the *Erebus*.

On the afternoon of the 28th, "Mount Erebus was observed to send out smoke and flame in unusual quantities, producing a spectacle of the grandest description. At each successive jet a volume of smoke was projected with great force to a height of about 2000 feet from the mouth of the crater, when, condensing first at its upper part, it descended in mist and snow and gradually dispersed, to be succeeded about half an hour afterwards by another splendid exhibition of the same kind.

"Whenever the smoke cleared away the bright red flame that filled the mouth of the crater was distinctly perceptible, and some of the officers thought they could see streams of lava pouring down its sides until lost beneath the snow which descended from a few hundred feet below the crater and projected its perpendicular icy cliff several miles into the ocean.

"Mount Terror was much more free from snow, especially on its eastern side, where were numerous conical crater-like hillocks, each of which had probably been at some period an active volcano."

The day was remarkably fine and the breeze was favourable, so the ships made good progress towards the south-east, sailing close along the lofty perpendicular cliffs of the icy barrier. So they travelled on, and after making 100 miles in this way they found that it still stretched away indefinitely into the south-

east. Soundings were taken, and the depth of the sea was found to be 300 fathoms, a circumstance which conclusively proved that the barrier was formed upon a ledge of rock, and that its outer edge was afloat and not resting on the ground. By the 30th Ross had traced the barrier for 160 miles, and, strangely enough, encountered no icebergs on their course; but this is well accounted for by Captain Ross.

"The temperature of the atmosphere and the ocean in summer differ from each other by only a few degrees; but in winter, when this difference often amounts to 70 or 80 degrees, the unequal expansion of those parts of the ice exposed to so great a difference of temperature produces a separation of large portions. As soon as the winter breaks up these large portions or icebergs, being driven by the prevailing southerly winds, drift to the north, and rapidly melt away."

In this connection Captain Ross recalls his experience of a sudden change of temperature in the Arctic regions, causing great rents and fissures in the ice many miles in extent. "There too," he says, "we have noticed the almost magical power of the sea in breaking up land, ice, or extensive floes of from 20 to 30 feet thick, which have in a few moments after the swell reached them been broken up into small fragments by the power of the waves.

"But this extraordinary barrier of Antarctic ice, of probably more than 1000 feet in thickness, crushes the undulations of the waves and yields nothing to their violence. It is a mighty and wonderful object

far beyond anything we could have thought or conceived."

Far away to the southward could be seen the ice-blink of this sphinx-like barrier, and a number of icebergs, evidently detached from it, were subsequently met with. In shape they were for the most part tabular, perfectly flat on the top, precipitous in every part, and from 150 to 200 feet high. From the season of the year, coupled with the fact that they were so near the point of their formation, the explorer had reason to conclude that they were resting on the ground. Soundings taken here gave a depth of 260 fathoms with a bottom of stiff green mud. It was, therefore, evident that the bergs, after having broken away from the barrier, had grounded on this curious bank about 60 miles away, and 200 miles distant from Cape Crozier, the nearest known land, and upwards of 50 miles from the edge of the barrier.

# CHAPTER V.

## THE HERO OF ANTARCTIC EXPLORATION—*Continued.*

FOR the next few days the *Erebus* and *Terror* continued to sail along the barrier, from which they were separated by several miles of close pack-ice. At length, on the 9th of February, they succeeded in getting inside the pack, and found the first break in this gigantic ice wall that they had seen throughout its entire extent. They approached within a quarter of a mile of the barrier, which far overtopped the mastheads of the ships, and afterwards entered the bay, which was formed by a projecting peninsula of ice terminating in a cape 170 feet high, but gradually lessening in height till at the narrow isthmus, which joined it to the great barrier, it was not more than 50 feet high. It appeared to be quite smooth, and conveyed to the mind "the idea of an immense plain of frosted silver. Gigantic icicles hung from every projecting point of its perpendicular cliffs, proving that it sometimes thaws, which otherwise could not

have been believed, for at a season of the year equivalent to August in England we had the thermometer at 12° and at noon not rising above 14°. This severity of temperature is remarkable also when compared with our former experience in the northern seas, where from every iceberg you meet with streams of water are constantly pouring during the summer."

With a temperature so low, and protected by the shelter of the barrier, young ice forms with dangerous rapidity, and the ships were nearly caught on one occasion. As it was, they only managed to get into open water by the aid of a favourable breeze and by the exertions of the crews in breaking up the ice before the ships. No sooner had they got into a clearer space than the wind came directly against them from the westward, so that had they not managed to get out when they did, they would have been frozen up in a most perilous position.

On the 8th of February at noon they were in latitude 77° 56′ S. and longitude 190° 15′ E., and in the course of the afternoon were able to make a good westward run under full sail along the edge of the pack. Later in the day there was much movement in the ice, and the explorers had renewed cause for thankfulness that they had abandoned the barrier when they did, for the channel by which they had come was filled by heavy ice so closely pressed together as not to leave the smallest opening.

For some days Ross made his way, coasting cautiously along the western edge of the main pack in hopes of

finding an opening. As he advanced the conditions of sea and weather made sailing more and more difficult and dangerous. Fogs of ever-increasing continuance and density hampered the navigation, and the appearance of icebergs, numerous and of great size, added to the general anxiety when they did not augment moments of actual peril, as well they might seeing they were of gigantic size, one of them being four miles long. The seas as they broke over the ship in spray froze on decks and rigging and even covered the sailors' clothes with a thick coating of ice. Under such circumstances it is not to be wondered at that even Ross felt the necessity of giving up for the present the attempt to pass to the eastward till the following season, and resolved to devote his time and energies to reaching the Magnetic Pole, at the same time seeking a harbour near in which the ships might winter.

From observations taken on the 14th, it was found that the Magnetic Pole was about 360 miles distant. Two days later Mount Erebus was again seen, and the weather being clear, a splendid view of the whole line of coast was obtained. The eruptions were magnificent, the flame and smoke being projected to a prodigious height and giving a weird yet beautiful aspect to the surroundings. On the following day further progress was stopped by heavy, closely packed ice, and an attempt was made to reach a point of land to the north-west where it was thought suitable quarters for the winter might be found, but the intervening space of 15 miles was filled by a solid mass of ice, which

made further effort in that direction no better than a useless throwing away of precious energy and valuable time. They were at this time in latitude 76° 12′ S., longitude 164° E., and the magnetic dip was 88° 40′, so that only 160 miles separated them from the Magnetic Pole, and the failure to find a suitable place in which to winter the ships was a keen disappointment.

"Had it been possible," says Ross, "to have found a place of security on any part of this coast where we might have wintered in sight of the brilliant and burning mountain, and at so short a distance from the Magnetic Pole, both of these interesting spots might easily have been reached by travelling parties in the following spring; but all our efforts to effect that object proved unsuccessful, and though our hopes of complete attainment were not realised, it was some satisfaction to know that we had approached the Pole some hundreds of miles nearer than any of our predecessors, and from the multitude of observations that were made in so many different directions from it, its position may be determined with nearly as much accuracy as if we had actually reached the spot itself.

"It was nevertheless painfully vexatious to behold, under an easily accessible distance under other circumstances, the range of mountains in which the Pole is placed, and to feel how nearly that chief object of our undertaking had been accomplished; and very few can understand the deep feelings of regret with which I felt myself compelled to abandon the perhaps too

ambitious hope I had so long cherished of being permitted to plant the flag of my country on both the Magnetic Poles of our globe; but the obstacles which presented themselves being of so insurmountable a character was some degree of consolation, as it left us no ground for self-reproach; and as we bowed in humble acquiescence to the will of Him who had so defined the boundaries of our researches, with grateful hearts we offered up our thanks for the large measure of success which He had permitted to reward our exertions."

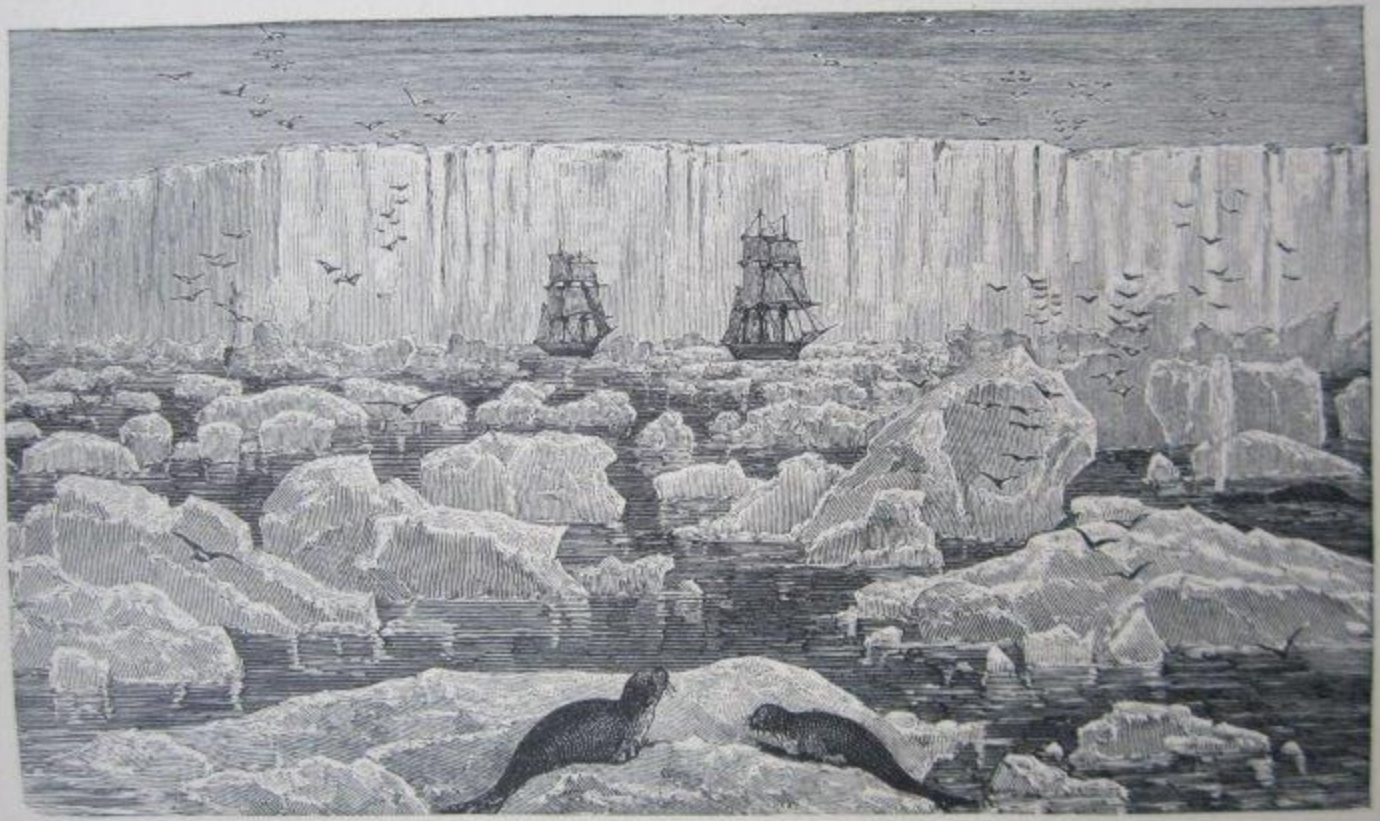
A range of mountains in the extreme west, where it was supposed the South Magnetic Pole was situated, received the name of H.R.H. Prince Albert, and the whole of the southern land which had been discovered and traced continuously as far as the 79th degree of latitude was given the name of England's greatest sovereign, Victoria. Strange and wonderful is the description of this new-found land as Ross has given it. He says—

"The whole of the land being perfectly free from cloud or haze, the lofty range of mountains appeared projected upon the clear sky beyond them beautifully defined; and although of a spotless white, without the smallest patch of exposed rock throughout its whole extent to relieve it, yet the irregularities of the surface, the numerous conical protuberances and inferior eminences, and the deeply marked valleys, occasioned many varieties of light and shade that removed the monotonous glare of a perfectly white surface, but to

which it is so very difficult to give expression either by pen or pencil."

The explorers had now to face the laborious task of retracing their way through the pack to the eastward. The undertaking proved to be one of the most arduous, for the young ice increased so rapidly that it was only with the utmost difficulty that any progress was made, for the whole surface of the sea was one continuous sheet of ice, through which it was so difficult to force the ships that an hour was sometimes spent in advancing only a few yards. Nor is this to be wondered at when we consider that the method by which the ice was broken was by rolling the boats on it; for while it was strong enough to resist the passage of the ships, it was not sufficiently strong to bear the weight of a party of men to cut a passage with saws. The whole night was spent in this fatiguing work, which, however, had its reward next morning, when the ships were able to continue on their course in clear water.

Winter was now rapidly approaching, as announced by the appearance of several stars at midnight, and the harbour of which they were in search was as yet to be found. Anxiously every opening and impression of the coast-line was scanned, but every indentation was completely filled with solid ice of great thickness. In one instance a body of ice was distinctly traced as a continuous mass descending from near the summit of the mountains several miles into the sea and terminating in stupendous cliffs. Finding his search vain, Ross decided to make for the north in search



THE GREAT ICE BARRIER OF THE ANTARCTIC.

of any lands that might lie between Cape North of Victoria Land and the Balleny Islands. This course involved another crossing of the pack, which had already been passed through near the Antarctic Circle, but it was hoped the ice might have been driven far enough to the north to leave a clear passage between it and the eastern point of Wilkes' Land.

Gales of wind, accompanied by fogs and snow, for many days rendered the navigation difficult and extremely dangerous, and when the wind, dropping, left the sea calm, the heavy roll of the waves was even more to be dreaded, for it drifted the ship towards the pack or against icebergs, and prevented the use of boats to tow the ships clear of them; indeed, Ross came to regard this constant heavy swell as more to be dreaded than all the other risks of the voyage.

At noon on the 28th the edge of the northern pack was reached. It appeared to be one unbroken mass of ice, dotted here and there with large icebergs, and so firmly wedged together that not the smallest hole of water could be seen in it. With a strong breeze from the westward, the *Erebus* and *Terror* passed along the edge of the pack amid great quantities of pancake ice, which formed rapidly at the low temperature. On this passage the strength of the ships was severely tested, and the shackle of the *Terror's* bobstay was broken. This was a most unfortunate accident, for the ship had to lie to while the damage was being repaired, a task of difficulty and danger in the darkness, and one which called forth the finer qualities of pluck

and endurance for which our navy is renowned. The ship's bows and deck were thickly encrusted with ice, and there was so much swell in the sea as to endanger the lives of the brave fellows that were engaged for nearly two hours slung over the bows up to their necks in water at every plunge of the ship, and this with the thermometer at 12° below the freezing point.

The damage having been made good, the voyage was resumed, and at five o'clock in the afternoon land was discovered. It appeared to be two small islands nearly joining and forming probably part of the group discovered by Balleny in 1839. On the 4th of March the ships were in latitude 66° 44′ S., in the same position in which Balleny had been, and on the same day strong appearances of land were seen to the westward. It was high and broken into islands, but further examination of the group was prevented by a return of fog and storm. Sail was made to the north-east, on account of the wind having increased to a gale, and so placing the ships in a very critical position; for, according to the chart which Lieutenant Wilkes sent to Captain Ross of the discoveries of the American expedition, a range of mountainous land was laid down, extending about 60 miles from north-east to south-west, and thus presented a dreaded lee shore to the *Erebus* and *Terror* in the position which they at the moment occupied.

For some hours they were in a state of great anxiety and no little uncertainty as to whether or not it would be possible to weather the land and the barrier, but

they succeeded, and in the evening of the 2nd of March they recrossed the Antarctic Circle, having been to the southward of it since the 1st of January, a period of sixty-three days. They were not yet, however, freed from apprehension, for during the night the hoarse cry of the penguin came to the mariners through the storm, which, with the ever-increasing quantity of loose ice that was encountered, kept alive their dread of dropping down upon the land, though the birds had frequently been met with several hundreds of miles from any known coast. This anxiety was further heightened by the extreme darkness of the night and the thick fog which encircled them, which prevented them seeing to any distance ahead, and kept all hands in a state of anxious watchfulness day after day.

At length there came a favourable change in the weather, and at daylight on the 5th of March the ships were steered towards the land which had occasioned them so much anxiety. At noon their position was found to be latitude 65° 34′ S., longitude 167° 40′ E., and between 40 and 50 miles from the north-eastern extremity of Wilkes' Land.

"We had a moderate breeze from the east, and a beautifully clear day, so that land of any great elevation might have been seen at a distance of 60 or 70 miles. As we advanced on our course," says Ross, "in eager expectation of making the land, our surprise and disappointment may be imagined when no indications of it were to be seen at sunset, though we were not more than 12 or 13 miles from its eastern extreme, as

laid down in Lieutenant Wilkes' chart; and we began to suspect that, having but little experience of the delusive appearance of these icy regions, he had mistaken for land some of the dense, well-defined clouds which so continually hang over extensive packs of ice—a mistake which we ourselves had on many occasions to guard against when appearances were so strong for several days in succession that few in either ship could be persuaded it was not really land until we actually sailed over the spot."

At daybreak on the following morning the sky and horizon were perfectly clear, and a most extensive view was obtained in every direction. Officers and men clustered on the mastheads, eager to catch the earliest glimpse of the Antarctic shores, but neither mountains nor barrier were to be seen. At noon the ships were nearly in the centre of the mountainous patch laid down in the American chart as forming part of the Antarctic Continent. The weather was exceedingly pleasant, and the remainder of the day was spent in searching for the supposed land till darkness put an end to the vain quest.

Early on the morning of the 7th of March, while running before a strong easterly breeze, the ships became embayed in a deep bight in the pack, and were greatly hampered in their movements by extensive stretches of pancake ice. They succeeded in getting clear, but soon afterwards the wind fell, and they found themselves being again driven towards the pack, amid which eighty-four large icebergs were counted from

the masthead and some hundreds of lesser size. This chain of bergs was now so closely packed together that the look-out could distinguish no opening through which the ships could pass, "the waves breaking violently against them, dashing masses of pack-ice against the precipitous faces of the bergs, now lifting them nearly to their summit, then forcing them again far beneath the water-line, and sometimes rending them into a multitude of brilliant fragments against their projecting points.

"Sublime and magnificent as such a scene must have appeared under different circumstances, to us it was awful, if not appalling. For eight hours we had been gradually drifting towards what to human eyes appeared inevitable destruction. The high waves and deep rolling of the ships rendered towing with the boats impossible, and our situation was more painful and embarrassing from our inability to make any effort to avoid the dreadful calamity that seemed to await us.

"In moments like these," says Ross, and his words have the true ring we are accustomed to hear in the utterances of those sea kings who in the days of the other woman ruler of our land made the name of England known throughout the world, "peace and comfort of mind could only be obtained by casting our cares on that Almighty Power which had so often already interposed to save us when human skill was wholly unavailing. Convinced that he is under the protection and guidance of a merciful God, the Christian awaits the issue of events firm and unmoved, and with

calm resignation prepares for whatever He may order. This serenity of mind surprises and strengthens but never forsakes him; and thus possessing his soul in peace he can with greater advantage watch every change of circumstance that may present itself as a means of escape.

"We were now within half a mile of the range of bergs. The roar of the surf, which extended each way as far as we could see, and the crashing of the ice, fell upon the ear with fearful distinctness, whilst the frequently averted eye as immediately returned to contemplate the awful destruction that threatened in one short hour to close the world and all its hopes and joys and sorrows for ever upon us."

Nearer they drifted to inevitable shipwreck, and nearer, when, on a sudden and as if by a miracle, a gentle wind sprang up and filled the sails. Hope was once more in the ascendant, and the men, without waiting for orders, hurried to their stations to be ready at the word to make the best use possible of the feeble breeze. The sails fluttered, then flapped and filled, and as the heavy ships began to feel its influence, gradually gathered way, and before darkness set in they were far removed from danger.

The fatigues and anxieties of the day were followed by a peaceful night, during which the ships made good progress to the west, favoured by a fresh south-east breeze, their course illumined by the bright light of the full moon, augmented at times by the brilliancy of the Aurora Australis. A sharp lookout was kept

for the land marked on the American chart, as from his observations Ross was now not far from the spot; but there was neither land nor indications of land to be seen. Ross therefore concluded that some other appearance had misled Lieutenant Wilkes, for he says: "Having now searched for it at a distance varying from 50 to 70 miles from it to the north, south, east, and west, as well as having sailed directly over its assigned position, we were compelled to infer that it had no real existence."

Having settled this point to his satisfaction, Ross now turned his attention to the location of the South Magnetic Pole, which was supposed to be in latitude 66° S. and in longitude 146° E. On the 20th they succeeded in reaching a position 45 miles to the north of it, but the ice prevented a nearer approach. The dip was here observed to be 85° 5′, the distance from the true Magnetic Pole being about 600 miles.

A return to a milder climate was now decided upon, and that his work would not lack completeness, Ross determined to find out if possible the position of the line of no variation in as high a latitude as circumstances would allow. On the voyage between Kerguelen Island and Van Diemen's Land he had crossed the line of no variation in latitude 46° S. and longitude 134° 30′ E., and, as he himself says, "It now appeared desirable to ascertain its situation in as high a latitude as circumstances admitted, and to cross it in an intermediate latitude on the way to Hobart Town; and thus by determining its place at three distinct and nearly

equidistant points, the nature of the curve by which it reaches the Magnetic Pole might be computed."

On the night of the 23rd the line of no variation was crossed in latitude 62° S. and longitude 135° 50′ E. The westerly variation then rapidly increased during the next five days till it amounted to 8° 47′ W. in latitude 57° 20′ and longitude 127° 49′ E., and again it regularly diminished until in latitude 54° 30′ S. and longitude 133° E. the line of no variation was crossed. After this the voyage was rapid and exceedingly pleasant, and on the 7th of April they reached Hobart Town, where they were welcomed by the Governor, Sir John Franklin, himself a hero of Arctic exploration, who was destined yet to win for himself a fame as imperishable as the regions which he gave his life to make known.

In summing up the results obtained by his first season's work in the Antarctic, Ross says: "Among the many events which have occurred during the arduous and hazardous operations in which we have been engaged, it is a source of no ordinary gratification to me to reflect that the execution of the service had been unattended by casualty, calamity, or sickness of any kind, and that every individual of both ships had been permitted to return in perfect health and safety to this our southern home."

## CHAPTER VI.

### A BRILLIANT ACHIEVEMENT.

ON the 17th of December 1842 Ross sailed with the *Erebus* and *Terror* from Port Louis in the Falkland Islands for a third voyage in the Antarctic. On this occasion the meridian of 55° W. was chosen as the line of advance in expectation of meeting with a continuation of Louis Philippe Land, and it was hoped, by following the line of coast to the south-eastward and keeping between the land and the pack, to be able to combine the survey of its shores with the attainment of a high latitude.

A week after leaving the Falklands the first iceberg was seen in latitude 61°. The following day being Christmas, it was spent after the traditional fashion, as far as circumstances would permit. "The crews enjoyed the good old English fare of roast beef, which had been provided by George Moody of the Falkland Islands, who had presented each ship with a fine fat ox."

During the afternoon the pack was seen stretching from east to south-west, and though it seemed tolerably open, Ross decided not to venture among it for fear of getting beset, and kept to his plan of trying to get between it and the land to the westward. The temperature was gradually rising, and many of the icebergs were rapidly breaking up, producing loud reports and crashes as they split and rolled over. "This was an unusual sight," says Ross, "for on the two former visits to these regions we had never seen the least appearance of thaw or breaking-up of the bergs."

On the following day land was discovered. It appeared to be a remarkable cape with a deep indentation to the north of it, having the appearance of a good harbour, and terminated by a less conspicuous headland. Still farther to the northward, and at a greater distance, another promontory was clearly seen. When the mist cleared away, an even, round-topped mountain covered with snow came into view, from which projected two warty excrescences of rock free from snow. From the shore a high island of extraordinary shape was seen at a great distance, and was named Ætna Islet, from its resemblance to that volcano. From an elevation of about 1200 feet an enormous glacier several miles broad descended into the sea, where it presented a vertical cliff about 100 feet high, near which was an immense collection of icebergs which had evidently broken away from it.

Proceeding southwards along a coast of icy cliffs, in a sea thickly dotted with grounded bergs, among which

the tide formed whirlpools dangerous to navigation, the ships were borne towards a group of low, rocky islets, half buried under heavy fragments of ice; these were named Danger Islets, and the southernmost of the group was called Darwin Islet. Many black whales were seen, so tame and unused to the dangerous presence of man that frequently the ships almost touched them before they attempted to move out of the way. Thus within a ten days' run of the Falkland Islands Ross had found not only new land, but a new and rich whale fishery within 600 miles of a British colonial possession.

At noon on the 30th the mainland was seen bearing in a direction of north-west to south-east, and the ships stood towards the land till midnight, when it was seen to be entirely snow-covered, except in a few places where perpendicular cliffs broke through the mountain glacier. The summit of the mountain to the north was terminated in two remarkable peaks nearly 4000 feet high. The mountain was named Mount Percy in honour of the commander-in-chief of the Cape of Good Hope station, to which the newly discovered lands belonged, and the high, bold cape forming the southern extremity of the island upon which Mount Percy rises was named Cape Purvis, and an island near it Paulet Island. Other islands and capes were also named. A wide and deep inlet to the north-west, in which were many high, conical islets, seemed to be a passage between Joinville Land and Louis Philippe Land into Barnsfield Straits. The

name of Point Barnsfield was given to the low western termination of the land.

"From this point the land is quite flat for a great distance from the shore towards Mount Percy, and near the centre of this extensive snow-covered plain a very remarkable tower-shaped rock rises to a conspicuous height, which was probably seen by D'Urville from the northward at a greater distance, as it is marked on his chart as a supposed island, the low land on which it stands not being visible at so great a distance. It was named D'Urville's Monument, in memory of that enterprising navigator."

On New Year's Day 1843 the weather was perfectly calm, and a most beautiful view was obtained of a magnificent mountain, which formed the most striking feature in the new discoveries. It rose precipitously from the coast to a height of more than 7000 feet in three horizontal volcanic terraces, the black rocky cliffs standing out in bold relief against the snow of the mountain. It was named Mount Haddington, and a small island rising nearly 3000 feet above the sea was named Cockburn Island.

On the 5th of January the loose ice drifted away from the islets and coast, leaving the shores of this island quite approachable. A party was accordingly sent on shore to take possession. It proved to be entirely of volcanic formation, but by far the most interesting discovery was that of the last vestiges of vegetation which were found on this barren rock. Nineteen species belonging to the orders Mosses, Algæ,

and Lichens were found. "The cliffs were belted with a yellow lichen which prevails in the vicinity of the sea throughout the Antarctic islands. It grows nowhere else in such profusion, a circumstance which may arise from its preference for animal matter, the penguin rookery of Cockburn Island, which taints the air by its effluvium, being perhaps peculiarly congenial to this lichen.

"The mosses grow in the soil in the fissures of the rocks. They are excessively minute and require the closest scrutiny to detect them, and were so hard frozen to the ground as to require a hammer for their removal. The seaweeds were all floating and carried along by a strong current loaded with masses of ice. Among birds, penguins and cormorants were innumerable, and the beautiful white petrel had its nest in the precipitous cliffs. The eggs of this bird, which had never before been examined, are $2\frac{1}{8}$ inches long, of a bluish white colour; and only one egg with the young in a forward state was found in each nest, which consisted only of a few feathers on the bare rock."

Passing up the inlet between Cockburn Island and the mainland, the explorers named this arm of the sea Admiralty Inlet, and found that it stretched inland for a distance of about 20 miles, when it terminated by a glacier which seemed to connect the opposite shores. The south-west land in the inlet for about 10 miles is described as "formed of deep brown-coloured lava with a polished surface, contorted and grooved in so extraordinary a manner as to give it the appearance

of having been marked by machinery in numerous series of lines somewhat resembling the engine turning of a watch case, but more irregular." This snow-covered land rises gradually to the southward to an elevation of about 2000 feet. It was named Snow Hill.

The returning tide carried the ships out of the inlet, and they steered away in a south-westerly direction between the land and a continuous line of grounded bergs. At noon on the 7th latitude 64° 34′ S. was reached, when the land, or rather its facing of icy cliffs, was seen to turn suddenly away to the westward, and bergs of enormous size, four to five miles in diameter and about 200 feet high, were clustered together in the fixed ice.

Frequently hampered by icebergs, and often delayed by fogs and snowstorms, Ross notwithstanding continued his course, and succeeded in tracing the ice in one unbroken line for a distance of nearly 30 miles, when it was found to turn suddenly to the north and join the icy cliffs at the foot of Snow Hill. As it was impossible either to continue the examination of the land to the westward or to make any progress to the southward, it was decided to trace the land-ice to the south-eastward as far as circumstances would permit. Before this could be done, however, it was necessary to get clear of the loose ice, which was now so closely packed that no way out was to be seen, and, to add to the difficulty of the position, the temperature fell again, and the water freezing threatened to enclose the ships. It was therefore determined to run the

ships into the ice, and endeavour to heave them through it.

Accordingly, they entered the pack with a favourable wind, and for eight hours warped, heaved, and bored through it until it became so compact that the ships could not be moved another foot. Everywhere the ice seemed most densely packed, and though it slackened a little with the turn of the tide, it was only temporary, and soon the pressure against the land became so great as to heel the ships over considerably, and make their stout timbers crack again.

On the 16th the floe to which the ships were made fast struck against a grounded berg and broke up in many pieces, one of which was swept away by the sea for several miles, carrying the *Terror* with it, and this though it had been impossible to move the ships their own length, so closely were they surrounded. Soon afterwards they came together again, and the ice breaking up, clear water was seen beyond the pack to the northward, which, after much exertion, was happily gained.

All further attempts to advance farther to the south were now rendered useless by the pack carrying the ships to the northward faster than they could be worked through it. Accordingly they got clear of the ice, and began to trace its edge to the eastward. For many successive days they sailed on, but no opening was seen by which the south might be gained.

On the 14th they had crossed Weddell's track in latitude 65° 13′ S., "but under what different circumstances.

He was in a clear sea; we found a dense, impenetrable pack: and as Admiral D'Urville was unable to attain even to the 64th degree, we must conclude that Weddell was favoured by an unusually fine season, and we may rejoice that there was a brave and daring seaman on the spot to profit by the opportunity."

For several days they ran along the edge of the pack, and on the 5th of March found an opening, into which they sailed as far as possible with safety; but after penetrating about 30 miles the ice became so close and heavy that it was judged prudent to proceed no farther. When at the farthest south their position was latitude 71° 30′ S., longitude 14° 51′ W. A cask was then thrown overboard containing a paper signed by Captain Ross and his officers with a statement of their progress.

Signal was now given to the *Terror* to make for the Cape of Good Hope. With colours flying they began the return voyage. Clear water was speedily gained, but for several days a gale of wind was encountered which exposed the ships to great danger from the numerous icebergs. So terrific, indeed, was the fury of the gale that the masts quivered to every sea that broke over the ship, and the water, freezing as it fell on deck and rigging, made the working of the ship an exceedingly dangerous, and at times almost impossible, task. Added to this, the night was terribly dark, and the crew were in a state of continual alarm and watchfulness for fear of collision with some of the bergs, which it seemed almost impossible to avoid.

At length, however, they came through all their

difficulties and escaped their many perils in safety, and without further adventure arrived at the Cape on the 4th of April, when the intrepid and dauntless commander had the proud satisfaction of reporting that he had brought back the expedition from the arduous service in which it had been engaged without the loss of a single life and without one of either ship's company on the sick list.

Thus ended one of the most brilliant and famous of all voyages of discovery that have ever been recorded in the annals of the world's exploration. Various geographical problems have been the outcome of his discoveries—problems which are yet to be solved. Ross, however, "delineated the lofty mountain range it was for another to explore, he saw the great active volcano which it was for his successor to examine, he reported the wonderful ice barrier which others were, when the time was ripe, to land upon and explore, and he thought he saw signs of the eastward land which his successor was to discover."

## CHAPTER VII.

### DISABLED.

N December 1841, after a short cruise to New Zealand, the *Erebus* and *Terror* once more set sail on a second Antarctic voyage. About the middle of the month the first icebergs were encountered, and on the 16th they were in latitude 58° 36′ S. and longitude 146° 43′ W. This being the meridian on which Ross intended to advance, the course of the ships was accordingly changed to due south.

The reason why he decided to begin his explorations at this point "was the hope that it would lead to the discovery of land, which I was led to expect by reason of the low latitude in which the ice had been met with by former navigators. At any rate, I thought it better to attain the eastern point of the great southern barrier, at which our explorations had been interrupted last year by the setting in of winter, by a route as widely different as practicable from that by which we had before approached it, and

thus enlarge the boundary of our examination of these regions."

Over a sea rendered dangerous by many heavy pieces of ice sufficiently large to destroy any ordinary ship that might strike against them, the *Erebus* and *Terror* made their way, encountering the usual signs of the Antarctic summer fog and snow, with intervals of clear weather. Early on the morning of the 18th of December the main pack was reached, and the ships were at once run into it. The ice was found to be very light and open, but presently it became heavier and more strongly pressed together, until, having penetrated about 30 miles, they were forced to steer more to the westward. Slowly the ships struggled on, and by the 1st of January 1842 had penetrated a distance of 250 miles. In the preceding season its breadth had not been more than 200 miles, and after making allowances for any changes that might possibly have happened, it seemed only reasonable to suppose that open water would soon be reached. In this, however, the explorers were greatly disappointed. Day after day they were held close prisoners by the ice; sometimes making a little headway, at others drifting with it and losing what they had gained by so much exertion and fatigue. The one wish heard on both ships was for a gale to arise and disperse the dense pack. This occurred on the 16th of January.

On the 18th there was a dense fog, accompanied by snow and rain. To prevent the ships being separated, they were made fast to the largest piece of ice that

could be found, mooring it between the ships to prevent collision, but now the increasing swell broke the hawsers and the ships were separated. They therefore kept within touch of each other during the fog by firing guns. The fog was succeeded on the following evening by a violent gale from the northward, and the sea rose to a fearful height, breaking over the loftiest bergs.

"Soon after midnight," says Ross, "our ships were involved in an ocean of rolling fragments of ice, hard as floating rocks of granite, which were dashed against the ships with so much violence that the masts quivered as if they would fall at each successive blow, and the destruction of the ships seemed inevitable from the tremendous shocks they received." By every means that experience and seamanship could suggest, they endeavoured to avoid the larger masses that littered that ice-strewn sea; but in vain. The rudder of the *Erebus* was already so badly damaged as to be useless, and that of the *Terror* was completely destroyed and nearly torn away from the sternpost. Hour after hour passed, and still the storm raged with all the virulence of its first fury. As they drifted deeper and deeper into the pack, the more perilous became their plight, for instead of getting beyond the reach of the tempest, as might be supposed, they were in infinitely more danger than before.

"Indeed there seemed but little probability of our ships holding together much longer," says Ross, "so frequent and violent were the shocks they sustained. The loud crashing noise of the straining and working

of the timbers and decks as they were driven against some of the heavier pieces, which all the activity and exertions of our people could not prevent, was sufficient to fill the stoutest heart with dismay."

Although they were thus forced by the storm many miles deeper into the pack, they could not perceive that the swell had in any way gone down. The ships still continued to roll and groan amidst the bergs, which pressed ever closer on them, as if assured of their prey and eager to claim it, while the sea played with them as they had been corks, throwing huge masses one upon another, and then burying them deep beneath its seething waters, dashing them hither and thither, grinding them together with a violence terrible to behold.

Nothing could be done to avert the impending calamity. Officers and men alike stood helpless, waiting with what courage each possessed for the end, noting with an apathetic interest each succeeding crash of the ice against the sides, watching the quivering of the tottering masts, and wondering how long it would be before they came crashing on deck to complete the work of destruction. It was not till late in the afternoon that the wind fell, but the squalls continued as violent as ever, laying the ship over on her broadside.

"At this time the *Terror* was so close to us that when she rose to the top of one wave the *Erebus* was on the top of that next to leeward of her, the deep chasm in between them filled with heavy rolling masses; and as the ships descended into the hollow between

the waves, the maintopsail yard of each could be seen just level with the crest of the intervening wave from the deck of the other. From this some idea may be formed of the height of the waves, as well as of the perilous situation of our ships."

The night fell, casting its gloomy mantle over the terrible scene, and making the distressed mariners feel their condition more hopeless and helpless than before. Fortunately, at midnight there was a welcome change in the weather; the wind dropped and the sea fell, and in the morning it was found that the ships had been carried through a chain of bergs which acted as a breakwater, and served to keep off the pressure of the ice. The earliest possible moment was then taken to see what damage the ships had sustained, and it was found that, with the exception of the rudders, they had come through the ordeal unscathed. "And it was a matter of astonishment as well as satisfaction to find that, after so many hours of constant and violent thumping, both vessels were nearly as tight as they were before the gale, so admirably had they been fortified for the service in which they were engaged."

No time was lost in setting to work to repair the rudder of the *Erebus* and fitting the spare rudder to the *Terror*, a work of difficulty and danger at any time, but now one of supremest peril. It was, however, by skilful guidance and good management, accomplished speedily and without accident. Before the ships were once more fit for active service, they were carried back by the current nearly to the same spot

as they had been three weeks before, and the season was now so far spent that it was impossible to look forward to accomplishing work of any importance.

On the evening of the 24th of January the ships were once more ready for active service, and they sped southward under full sail—moored as before to a floe to prevent the risk of separation. During all this period the sun had seldom been seen, and though they had sailed more than 800 miles, they were only a short distance to the southward of the point reached by Captain Cook, who had no occasion to enter the pack at all; so uncertain are the effects of season in those icy seas, and in proportion to this uncertainty are the perils of their navigation.

At length, on the 1st of February, the clear sea came in sight, but between it and the ships lay a line of tossing ice and foaming breakers, and through this they must pass before they could regard themselves even in comparative safety. The passage through this band of ice and foam was short but severe, and though severely strained the ships came out of the ordeal uninjured, and the joy of all on board on escaping from the pack in which they had been bound for fifty-six days needed to have been seen to be realised. Snow was falling heavily and limited their view to half a mile, but they sailed on, keeping a sharp lookout for wandering icebergs, and when the weather at length cleared they found themselves in an almost perfectly open sea. At noon on the following day they were in latitude 67° 57′ S. That night, for the first time, several stars were visible,

which, together with the increasing darkness, indicated the near approach of the time when it would no longer be possible to navigate those seas.

They continued to coast the pack till the morning of the 4th of February, when they found it stretching across their route and barring further advance to the southward. Entering a deep bight in the hope of finding an outlet, the ships were embayed and had a difficult piece of navigation to perform before they got out again. Once more they steered along the pack in a southerly direction, accompanied by a gale of wind; and on the 16th, when they were in latitude 75° 6′ S. and longitude 187° 4′ W. they found themselves in the open sea. From the masthead no ice was visible except two small and distant bergs.

The season was altogether much milder than in the same period of the previous year; but on the 20th a southerly gale sprang up and continued with great violence for two days. The thermometer was as low as 19°, and the waves froze even as they fell on decks and rigging, and accumulated in a short space of time such a weight about the ship that the men had to be kept constantly at work with axes breaking it away. While the men of the *Terror* were thus employed, a small fish about six inches long was found among the ice, having probably been dashed on board by a wave and instantly frozen fast. It was carefully taken up to be preserved at some more suitable time, but unfortunately in the meantime the ship's cat forestalled the taxidermist.

About midnight on the 22nd the ships were in sight of the great barrier discovered the previous year, and on a nearer approach it was seen to be much more broken and indented than it appeared farther to the west. Finding the barrier in this position was a great blow to their hopes of reaching a higher latitude, and this disappointment was greatly increased by the fact that after all they were only six miles in advance of their position of the year before. As they coasted along to the eastward the barrier was seen from the masthead gradually to rise to the southward, presenting the appearance of mountains of great height covered with snow. There could be little doubt that it was land, but, to protect himself from the error into which Antarctic explorers were so eager to plunge, Ross entered it on his chart simply as "an appearance of land."

Danger is the lot of every explorer, but seldom has there been a voyage in which so many, so varied and unexpected dangers have been encountered and conquered as this. The cold had been gradually becoming more and more severe as the ships made their way farther and farther south, and now so severe was the frost that the sea everywhere showed an unbroken surface as far as the eye could see, and the ice closing round threatened to freeze the ship in for the winter, and in a position of extreme danger. Fortunately, a strong breeze sprang up just at the critical moment before the ice had obtained too strong a hold, and by hoisting all sail they were enabled to force a passage

through the young ice, and soon afterwards were again in clear water.

Winter was now setting in in earnest, and for the second time it became necessary to quit the Antarctic. Though the long detention in the pack had deprived the explorers of many anticipated results, the season had not altogether been thrown away. They had attained a higher latitude than in the previous year, and had traced the continuation of the barrier ten degrees of longitude farther to the eastward, and had sailed over a large portion of these regions hitherto unexplored. So the order was given and the return voyage commenced.

They continued to sail along the edge of the pack till the 28th, when they encountered an extensive chain of icebergs, so close together that no way could be seen through them, and the course was accordingly altered to the south-west. On the morning of the 1st of March the bergs were again seen extending as far as the eye could reach in an unbroken line to the northward. From the masthead the edge of the pack was seen stretching several miles to the west of the bergs. It consisted of the heaviest masses of ice much worn and rounded by the action of the sea, and of a deep blue colour. Passing these bergs in safety, the ships quickly reached latitude 60° 20′ S. From this time their progress was rapid, and during a run of several hundred miles only four or five bergs were seen.

On their northward course the explorers had an adventure with icebergs unique in every particular.

The ships were under all sail they could carry to a strong north-westerly breeze, and when evening came on the wind increased in force and snow came on so heavy that it was necessary to shorten sail. "Numerous small pieces of ice were also met with," says Ross, "warning us of the presence of bergs concealed by the thickly falling snow. Before midnight I ordered the topsails to be close reefed, and every arrangement made for rounding to till daylight, as I considered it too hazardous to run any longer. Our people had hardly completed these operations when a large berg was seen ahead and quite close to us. The ship was immediately hauled to the wind on the port tack, with the expectation of being able to weather it; but just at this moment the *Terror* was observed running down upon us, and as it was impossible for her to clear both the berg and the *Erebus*, collision was inevitable. We instantly hove all aback to diminish the violence of the shock; but the concussion when she struck us was such as to throw almost everyone off his feet.

"Our bowsprit, topmast, and other smaller spars were carried away, and the ships, hanging together entangled by their rigging, and dashing against each other with fearful violence, were drifting down upon the weather face of a lofty berg, against which the waves were breaking and foaming to near the summit of its perpendicular cliffs. Sometimes the *Terror* rose high above us, almost exposing her keel to view, and again descended as we in our turn rose to the top of a wave, threatening to bury her beneath us, whilst the crashing

of the breaking upper works and boats increased the horror of the scene. Providentially we gradually forged past each other, and separated before we drifted down among the foaming breakers; and we had the gratification of seeing her clear the end of the berg, and of feeling that she was safe.

"She left us, however, completely disabled. The wreck of the spars so encumbered the lower yards that we were unable to make sail so as to get headway on the ship, nor had we room to wear round, being by this time so close to the berg that the waves, when they struck against it, threw back their spray into the ship. The only way left to us to extricate ourselves from this awful and appalling situation was by resorting to the hazardous expedient of a stern board, which nothing could justify during such a gale and with so high a sea running but to avert the danger which every moment threatened us of being dashed to pieces.

"The heavy rolling of the vessel, and the probability of the masts giving way each time the lower yards struck against the cliffs, which were towering high above our mastheads, rendered it a service of extreme danger to loose the mainsail; but no sooner was the order given than the daring spirit of the British seaman manifested itself. The men ran up the rigging with as much alacrity as on any ordinary occasion, and though more than once driven off the yard, they after a short time succeeded in loosing the sail. Amidst the roar of wind and sea it was difficult both

to hear and execute the orders that were given, and so it was three-quarters of an hour before we could get the maintack hauled on board, sharp aback, an expedient that perhaps had never before been resorted to by seamen in such weather; but it had the desired effect, for the ships gathered sternway.

"Plunging her stern into the sea, washing away the gig and quarter boats, and with her lower yard-arms scraping the rugged face of the berg, we in a few minutes reached its western termination, the undertow, as it is called, or the reaction of the water from its vertical cliffs, alone preventing us being driven to atoms against it. No sooner had we cleared this one than another was seen directly astern of us, towards which we were running. Our difficulty now was to get the ship's head turned round and pointed fairly through between the two bergs, the breadth of the intervening space not exceeding three times her own breadth.

"This, however, we happily accomplished, and after in a few minutes getting before the wind, she dashed through the narrow channel between two perpendicular walls of ice and the foaming breakers which stretched across it, and the next moment we were in smooth water under its lee. The *Terror's* signal light was immediately seen and answered, thus relieving the anxiety of her people as to the fate of their companions. Strangely enough, she had suffered no serious damage by the collision."

Under shelter of the berg the crew set to work with

a will to clear away the wreckage and replace the broken spars. "The following day being Sunday, the crews of both ships assembled together to offer up their thanksgivings and praises to Almighty God for the renewed instance of His guidance and protection which they had so recently experienced."

Having completed the necessary repairs, Ross succeeded in reaching the Falkland Islands on the 6th of April without further perilous incident or hazardous adventure.

## CHAPTER VIII.

### FARTHEST SOUTH.

IT was a brilliant afternoon in August 1898 when the good ship *Southern Cross*, gay with flags and bunting, sailed down the Thames bound on a voyage of exploration to the Antarctic regions. She was under the command of Carsten E. Borchgrevinck, an explorer who had already seen something of life in the great white region of the far south, and carried a crew of thirty men and ninety dogs. No expense had been spared in fitting out the expedition for the purpose on which it was being sent, and it was confidently anticipated that she would return with results worthy of the flag under which she sailed.

"The white cliffs of Old England soon faded from sight, and the thoughts of many on board naturally ran to whether they would ever see them again, or whether they would leave their bones beside the other white cliffs to which they were going."

The voyage was a pleasant one and lasted ninety-

eight days. During this period nothing of consequence happened. In crossing the line the time-honoured observances connected with the arrival of Father Neptune were carried out as a welcome relief to the monotony of life on shipboard. Without further incident Hobart was reached. Here the voyagers were entertained with true colonial hospitality, and before leaving Borchgrevinck placed at the foot of Franklin's statue a wreath bearing the following inscription :—

"A tribute to the memory of Sir John Franklin, Lieutenant-Governor of Tasmania 1837–43, from the commander and members of the British Antarctic Expedition 1898."

After spending a couple of weeks at the Tasmanian capital the *Southern Cross* set sail on the 19th of December, and shaped her course into the unknown. The weather was bright and the sea calm, and all on board were busily engaged in the final preparations for the work that lay before them. Eleven days later the first of the Antarctic scouts were met with in the shape of icebergs.

"It was an anxious but interesting moment," says Borchgrevinck, "in the crow's nest as I watched the vessel as she rose on the swelling ocean and dashed in among the grinding ice-blocks. Trembling and shaking, she trod her way onward, while the swell grew rapidly less as we forged our way into the inner ice-pack.

"To crawl up into the crow's nest at the top of the

Nicolai Hansen (zoologist). Dr. Klövstad (medical adviser). Louis Bernacchi (magnetic observer and photographer).

*From a Photo]* Hugh Evans (zoologist). Sub-Lieut. Colbeck, R.N.R. (magnetic observer). A. Fougner. *[by George Newnes Ltd.*

SOME OF THE OFFICERS OF THE "SOUTHERN CROSS."

mainmast," says Borchgrevinck, who from this lofty elevation directed the ship's course through the ice, "is no easy task, especially when dressed in fur and mittens. Considerable caution must be used whether the vessel at the time moves in a heavy swell or is shaken under the pressure of the ice. All ropes and stays are covered with ice, your mittens stick to the ropes, and if you are not careful you may lose your hold while the mittens are left sticking to the ropes. Should you try to avoid this danger by climbing without any covering on the hands, they get stiff and hard in a moment, and the chance of dropping to the deck is greater than ever.

"The last approach to the crow's nest is by a ladder running from the head of the undermast outwards, and you literally hang on to the rings of the ladder, suspended, as it were, in mid air. You arrive at the bottom of the cask which forms the crow's nest. This bottom acts both as a floor and as a trap door, and moves on hinges. You lift it up with your head, catch hold of a frozen icy rope with a knot in the end, and by dint of squeezing and shoving get yourself through the narrow passage, shut the door under you, which then forms the floor, and look down upon the icy world below you. You see the ice as it closes and opens far out towards the horizon, while here and there icebergs are floating about in halos of the most dazzling pink and crimson."

The pack was entered in safety. On the 22nd of January, however, the ice pressure was so heavy that

preparations were made in case it should become necessary to abandon the vessel. Fortunately, the ship stood the test admirably, and it says much for the strength of her construction that she was lifted bodily four feet out of the water without suffering any appreciable strain. There she remained stuck fast for weeks, and the commander had decided to make his way over the ice to Victoria Land when the pack slackened, and he determined to get free and make another attempt to penetrate the ice farther to the east. This was done after a hard and continuous struggle of forty-eight days. Then under sail and steam the *Southern Cross* was steered eastwards, and entered Robertson Bay on the 17th of February 1899.

"Only a yellow border," says Borchgrevinck, "at the foot of the rocks of the cape was visible to indicate the place where I intended to pitch the pioneer camp. It seemed at a distance so small and inhospitable that some of my staff remarked that if it was there I proposed to live for a year they had better send letters of farewell back with the ship. It was a moment which I believe will always remain in the memory of us all, as we slowly moved towards the low beach whereon man had never ventured to live before, and where we were to live or perish under conditions which were as an unopened book to ourselves and to the world."

So they landed, and at once set to work preparing their quarters. Two huts were erected four yards apart, the one to be used as a dwelling and the other

as a store. "The space between was formed of wood, sealskin, and canvas, and formed a kind of store-house, lumber-room, and general repository for all kinds of necessary articles that were not required, and would have been out of place in the huts. The dwelling hut had three separate doors to its centre, one to a kind of hall four feet wide, and two towards the inner dwelling; the doors moving inwards so as to enable us to dig ourselves out in case a great snow-drift should block the way. At both sides of this hall was a small room, one to be used as an instrument room and for developing photographs, the other as a taxidermist room. These rooms were lined with wool and fur, and were approached through small vertically sliding trap doors, some two feet from the floor.

"The floor in the dwelling hut was doubled with papier-maché between the layers of planks. The walls were lined with wood, also with papier-maché between the outer walls and the inner panelling. A double and horizontal roof was about 7 feet high. In the middle of this a trap door led into a loft formed by the sloping roof. Here a good deal of clothing and provisions for immediate use were stored, also physic.

"In the dwelling-room below, which was 15 feet square, ten bunks were fixed to the northern and eastern walls—the window being towards the west and consisting of a small double framework carrying double glass with a big, heavy snow-shutter outside. There was also a large square camp stove on wheels.

Tables, chairs, and various odds and ends completed the furnishing."

The bunks were arranged after the style usual on board whaling vessels, completely enclosed except for a small opening at the head. In these each man had his immediate personal belongings, his books, diaries, and writing materials, and "here during the dark time, and long sleepless nights, we did a good deal of work."

On the 23rd of February a terrible gale came on, which gradually increased in fury till it was blowing a perfect blizzard. So serious did the situation become, that orders were given to cut the rigging; but though several of the bravest and stoutest seamen made the attempt, it was found to be impossible, owing to the fury of the wind, and to the fact that the ropes were so coated with ice that they looked as if encased in glass. Two anchors were thrown out, but they proved powerless to hold the ship from the certain destruction to which she was assuredly drifting. As a last resource the engines were set agoing full speed ahead, but such was the strength of the wind that they only managed to keep the ship in her position in the bay. Day after day the men were kept in a state of constant alarm; again and again destruction seemed about to overwhelm them, and it was only by the most skilful seamanship that the *Southern Cross* was kept afloat.

At length the gale abated, and it was decided to run up Robertson Bay for shelter. At the top of the bay a magnificent glacier was found descending right

into the bay at a slope of about 50 degrees from a height of 2000 feet, and intersected by numerous crevasses. This glacier was named after Sir George Newnes, by whom the expedition had been fitted out. To another point the explorer gave the name of Sir John Murray, after the famous scientist of the Challenger Expedition.

"On 2nd March," says Borchgrevinck, "we hoisted the Union Jack, presented to the expedition by H.R.H. the Duke of York, at Cape Adare, and greeted it with loud cheers from those on shore, and with a salute and the dipping of the flag from the ship. Addressing the staff and crew, I said, 'Hereby I have the honour of hoisting the first flag on the great Antarctic Continent. It is the Union Jack of Great Britain.'

"In the evening the *Southern Cross* left us at our pioneer settlement at Cape Adare—which I had christened Camp Ridley, after my mother—with instructions to proceed to New Zealand and return to us as soon as possible in the following year."

As the little band of pioneer explorers watched the ship becoming dimmer and dimmer in the distance, they cannot but have been impressed with the utter isolation of their situation, cut off as they were from all the world by at least 3000 miles of peril-strewn sea. They were about to attempt what had never before been dared—to winter in that terrible region. How would they fare? Would the ship make the double passage in safety, and if she did, how many would there be to welcome her return? If she did not, what would be their fate?

Those who were left behind with Borchgrevinck were: Lieutenant W. Colbeck, R.N.R., magnetic observer; Nicolai Hansen, taxidermist; Louis Bernacchi, magnetic observer, astronomer, and photographer; Dr. H. Klövstad, medical officer; Hugh Evans, assistant zoologist; Anton Fougner, a cook; and two Finns named Per Savio and Ole Must.

The *Southern Cross* had only just taken her departure in time, for on the following day the bay was full of pack-ice, which had drifted in during the night. While the others were getting up the stores from the beach and putting things to rights within the huts, Borchgrevinck, accompanied by Bernacchi, ascended Cape Adare to a height of 3670 feet. They found no vegetation above an elevation of 1000 feet, and at 3000 feet there was a considerable quantity of snow.

The temperature now began to fall rapidly, and no time was lost in putting the finishing touches to the buildings. On the 15th of March they got their first sight of the Aurora Australis. It had the form of many-coloured curtains waving from south towards east. On the 17th the last bags of coal were brought up, and now that everything was under cover preparations were made for a preliminary trip to the top of Cape Adare, whence the explorers hoped to be able to reach the inner part of Robertson Bay. Their departure was, however, put off by a terrific hurricane accompanied by fierce snow squalls. The force of the wind may be judged from the fact that it lifted one of the boats from the beach bodily and smashed it on the rocks. The

camp was wrapped in a dense whirl of snowdrift, and the dogs were completely buried.

About the middle of April Borchgrevinck set out to penetrate into Robertson Bay on the ice. He was accompanied by Bernacchi, Fougner, and the Finn Savio. They took with them twenty sledge dogs, one small collapsible boat, and provisions for twenty days. The first night they encamped on a small stretch of beach at the foot of the precipitous cliff of Victoria Land. The spot chosen was not more than 30 yards wide and only about 4 feet above water. Presently the wind began to blow from the south, and gradually increased in force until it became a violent gale. Fearing lest the ice might break up, it was arranged that one should keep watch while the others slept; and well it was that this precaution was taken, for in a short time the ice began to break up, and they had only time to convey their provisions on to the top of the gravel slope out of the reach of the hungry sea. Here, in a narrow groove between the perpendicular wall of Victoria Land and a low fence formed of drift snow, the tent was pitched and the provisions and travelling gear hauled into safety. Bitter and trying work it was, for the spray sent among them by the huge breakers froze as it fell, covering everything with a coating of ice.

On the night of the 23rd the bay was quite free from ice and the sea was calm, so it was decided that the doctor and the Finn Savio should take advantage of this favourable opportunity to return to Camp Ridley. Soon after their departure heavy ice masses began to

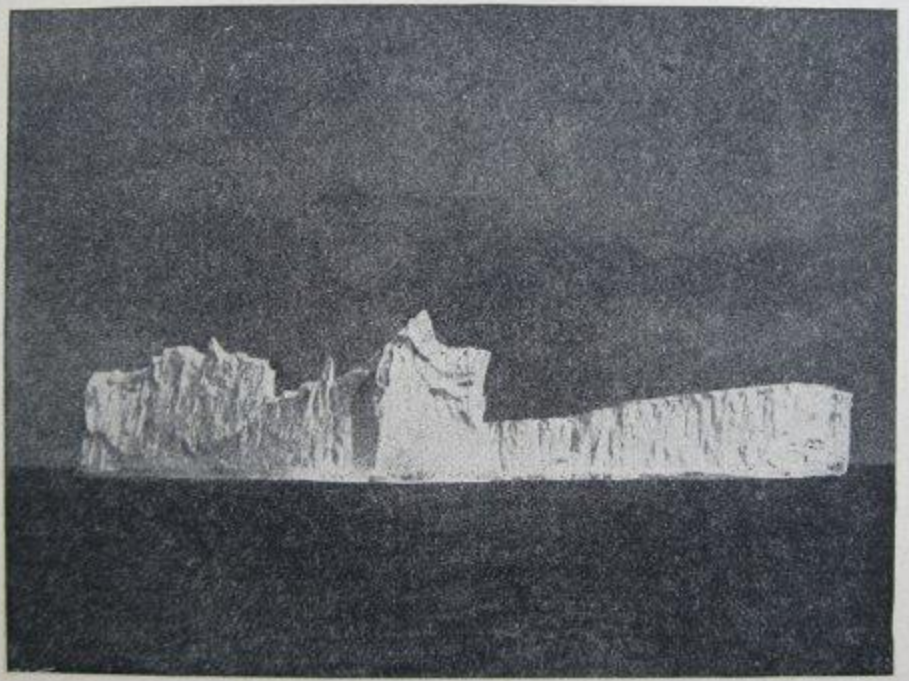
drift into the bay, and those left behind were filled with anxiety for the safety of the doctor, who must have met with the ice on his return. Two days passed away without news, and they began to fear for the worst, when on the evening of the 25th their eyes were gladdened with the sight of the Finn followed by the doctor cautiously making their way down a very steep ice swell which descended from the perpendicular wall of Victoria Land. Eventually they reached the encampment in safety and told their story.

Driven by the fury of the tempest, they had been forced to spend two days and two nights under the shelter of their boat, and finding it impossible to reach Camp Ridley, they had decided to return. They brought good news, however—that they had found a good place, if not the only likely place, for an ascent to the ridge 5000 feet above. The first part of the ascent they described was full of difficulty and danger, but beyond that there was no peril other than that invariably attendant on such an enterprise.

It was therefore decided to make the ascent, and on the 27th they set out. By following the steps which the others had cut they advanced rapidly. The higher they went the colder it became, and it required all the hardihood of which they were capable to persevere. Throughout the night they climbed, and eventually by way of the ridge managed to reach Camp Ridley, where their long absence had occasioned considerable anxiety.

On the evening of the 5th of May the explorers

witnessed a scene of singular grandeur. There had been for some time considerable movement in the ice, and a broad barrier about 30 feet in height had been formed along the north-west beach. The whole of this barrier was now a moving mass of ice blocks, each several tons in weight. Even as they watched this barrier grew in height, and with wave-like motions



A TYPICAL SOUTH POLAR ICEBERG.
*(From a Photograph.)*

threw large blocks of ice on to the peninsula. Still the movement went on with a noise like thunder. Sometimes it was heard near the beach, then for a few moments there was silence; again the roaring and gnashing was heard, this time away out on the horizon, but becoming louder and more distinct as the pressure

came onward again, its progress marked by the piling up of block on block of masses of ice, each several tons in weight. When the pressure ended the barrier must have been between 40 and 50 feet high at its highest.

The Antarctic winter was now fast approaching, and the most intense cold prevailed. Great preparations were now carried on for the work which had to be done; the sledges were seen to, and all gear tested to make sure it was sound and in thorough working order.

"On 15th May we had the last greeting from the departing sun. The refraction of it appeared as a large, red, elliptical glowing body in the north-west, changing gradually into a cornered square, while the departing day seemed to revel in a triumph of colours, growing more in splendour as the sun sank, when the colours grew more dainty and surpassed themselves in beauty. It imprinted itself in the minds of us ten so strongly that it made life possible for us through those dark days and nights to come. The promising effect of that evening of the 15th of May 1899 lasted and cheered us till the returning sun again made the peaks and crevasses shine on the 27th of July."

It was during these last days of sunshine that the explorers observed a remarkable mirage, showing icebergs towering high above surrounding icefields, while dark channels of open water showed plainly meandering amid the white plain, and all the other features of Antarctic scenery were plainly visible to the imagination.

On the 18th of May a terrific storm of wind broke over the camp; stones were hurled in all directions, whilst sledges and boxes flew about as if gifted with wings. It was absolutely dangerous to venture outside the hut, and he whose duty it was to read the meteorological observations had to have a rope fastened round his waist although the place was only 200 yards away. Some idea of the force of the wind may be formed from the fact that the anemometer broke on its shaft, literally blown off.

The monotony of their life began to press somewhat heavily on the little party. "We knew each line in each other's faces, each one knew what the other had to say. Our whole repertoire was exhausted, but, knowing the fact, all kept cheerful." Under such circumstances the arrival of Queen Victoria's birthday was hailed as a welcome break in the monotony of existence. On that day additional rations were served out and the occasion celebrated in as becoming a manner as the circumstances allowed. The day, however, nearly ended in a tragedy. A heavy gale was blowing from the south-east with blinding snowdrift when Evans went out to look after the thermometers. In crossing from the camp to the screen he let go his hold of the guiding rope for a moment, and in another instant he was carried away from the spot. As he did not return, a search party promptly set out. Hither and thither they searched for three hours in a blinding snowdrift, and it was by rare good fortune that he was found by the doctor and one of the Finns, and brought to camp

in a very exhausted condition. Remedies were promptly applied, and he soon recovered.

"During these days of storm and darkness," says the explorer, "a remarkable thing used to happen. While the gale was at its height, it would suddenly cease for quite two or three minutes. Instantaneously the rush and roar overhead would stop, to be succeeded by the absolute stillness of the Antarctic night. Then, as suddenly as it had ceased, the gale would howl again and rage worse, if possible, than before."

Meanwhile everything was being got in readiness for the southward advance, and several minor sledge journeys were taken to accustom the explorers to the conditions of Antarctic travel. Depôts were also established at various places along the coast in Robertson Bay. The cold was now intense, and all suffered severely, especially Hansen, who appeared to be in a very low condition, and gradually lost all feeling in his legs.

On the 21st Borchgrevinck set out, accompanied by Fougner and both the Finns, on a sledging expedition to the southward. Over uneven ice they made their way, the track becoming more and more impossible the farther they advanced. It was desperately trying work. In the grey morning after a light breakfast the dogs had to be harnessed—in itself a task of no light order, for the metal of the buckles stuck to their fingers, and the straps seemed to be in an endless tangle, which it required as much patience as skill to unravel. Then when this was accomplished and the

teams set in motion, the trouble was still only about to begin, for as often as not a dog in one team would remember some old quarrel it had with a dog in the other team. The recollection seemed to be mutual, and the two teams would rush together with the rapidity of thought, and before anything could be done to prevent the collision the two teams would be one involved mass of snarling dog and entangled harness. At length, having got the animals separated, peace restored, and the gear adjusted, it was possible to make another start.

On this occasion Borchgrevinck was unable to proceed far owing to the sledges breaking down. It was a sore disappointment, for he had hoped, by risking this journey through the Antarctic winter, to have reached Possession Island; but he comforted himself with the reflection that the experience thus gained would probably save valuable time later on when more important work had to be accomplished.

# CHAPTER IX.

## FARTHEST SOUTH—*Continued.*

SOON after his return to Camp Ridley the monotony of the Antarctic winter was rudely disturbed by a fire in the hut. One night Borchgrevinck was awakened by a feeling of suffocation, and on rousing himself found the hut filled with smoke. It turned out that one of the bunks was on fire, owing to a candle having been left alight and set fire to the woodwork. It gave them all a good fright, and after this extra precautions were taken to prevent a recurrence of so alarming an incident, and for the future ten knapsacks full of provisions were kept hanging ready in case fire or some other scare should force them to quit the hut in a hurry.

On the 26th of July another sledge party, consisting of Borchgrevinck, Evans, and the two Finns, set out with the intention of reaching the coastland to the west of Robertson Bay. The travelling was very rough, and large blocks of ice heaped up one on another made

the route almost impassable. The first encampment was in the worn cave of an iceberg, where they passed a wretchedly cold night, and were more than thankful when morning came. As the ice ahead seemed promising, Borchgrevinck decided to send Evans back to camp to bring along Colbeck and Fougner with more sledges and provisions, while he with the two Finns went forward. They travelled all that night without pitching camp. In the morning the weather was misty, and it was impossible to get any observations. They accordingly encamped, and well it was they did so, for soon afterwards a heavy gale came on which continued without a break for three days. It was bitterly cold in the tent, which was rapidly filled with a dense mist from the heat given off by the lantern, and soon a thick layer of frost covered the inner walls. Outside the snow continued to fall heavily and soon buried the tent, the weight of the snow just leaving the adventurers enough room for their sleeping bags. Every now and then they took turns in getting up on all fours to prevent being smothered by the weight of the snow. For three days and three nights this went on, and they began to wonder what they should do if the storm did not abate.

The dogs were completely snowed down and frozen fast to the ice. At last the storm spent itself, and the explorers set to work to dig themselves out of the drift, a cold and tedious task, which was not accomplished without several severe frost-bites. Resuming his journey, Borchgrevinck sighted an island to the

south, and shaped his course in that direction. They reached the western side of it soon after dark, and here, hungry and quite worn out, they pitched their camp. Early next morning they were astir, looking eagerly for the comrades who were to assist them, but no sight of them was to be had, and it seemed almost certain that they had been forced by the fury of the gale to return to headquarters; and such, indeed, was afterwards found to have been the case.

Having given the name of Duke of York Island to his discovery, Borchgrevinck proceeded to examine the coast-line. Proceeding along the northern shore, he reached a bay to which the name of Crescent Bay was given, and during the subsequent days he devoted himself to a systematic investigation of the neighbourhood, and in spite of the intense cold succeeded in making a most valuable geological collection.

Soon after this it was decided to return to Camp Ridley, a journey which was safely accomplished, though the nights were very dark and the track heavy, and the cold was so intense that they dug themselves down in the snow, finding this method of camping warmer than being in the tent. After his return Borchgrevinck decided to devote his energies to the exploration of Robertson Bay, especially as the locality contained valuable scientific properties, and also because here he thought to find a place from which he could penetrate farther into the interior. During the remaining days of August and in September expeditions were sent out under different members of the staff.

COMMANDER BORCHGREVINCK.

Meanwhile, at Midwinter Camp a rough stone hut had been constructed of rocks covered over with canvas and sealskin, and the first snowstorm completed the work they had begun by covering it completely with snow. The provisions were placed in a large cave which the Finns carved out of an immense drift, and approached through a winding tunnel about 30 feet long. Constant communication was maintained with Camp Ridley, and stores were brought up to form a depôt at Duke of York Island.

The last to bring food supplies to the depôt were Bernacchi and Ellefsen, and on their way they had an impressive experience of the fury of an Antarctic tempest. They were overtaken in the ice pack by a furious gale, and sought refuge on a berg. The cold was frightful, and the wind blew with such violence that they could not, even by crawling on all fours, make headway against it. Here they were forced to spend the night, crouching together for warmth in a cavity until daylight and the abatement of the gale allowed them to proceed on their way.

It was a period of continual peril and ever-recurring adventure. Once while crossing a glacier in Victoria Land one of the Finns fell down a crevasse, the opening of which was concealed by a thin layer of snow. Down he went headlong, turning three times head over heels in his desperate plunge, before he became fixed head downwards in a narrow opening 60 feet below. By some means he managed to turn himself head upwards, and for hours he remained in this terrible predicament,

utterly unable to help himself, and far beyond the reach of help. On either side of him, not a yard away, yawned a fathomless abyss. Fortunately, his coolness and presence of mind did not desert him, and as soon as his faculties recovered from the shock of the fearful plunge he set to work with a strong pocket-knife, and began laboriously to cut small steps for his feet. Then pushing his back against the opposite wall of the crevasse, he gradually carved his way to the top, which he reached in safety, but so utterly worn out by the awful strain that for hours after he was unable to speak.

On the 12th of September Borchgrevinck, accompanied by Lieutenant Colbeck, the doctor, Bernacchi, and the two Finns, started at seven o'clock in the morning from the stone hut. Towards the west of Duke of York's Island a gentle slope led up to a height of about 70 feet. Here the explorers found themselves on the top of a junction of glaciers, to which the names of Sir John Murray and Dougdale glacier were given. Thence they travelled towards the high land on the east, which was named Geikie Land, after Sir Archibald Geikie.

Upwards they went, dragging the sledges after them. Steeper and steeper grew the ascent, frequent and more numerous became the crevasses, until any further advance with the sledges was seen to be quite impossible. Then they roped themselves together—the doctor, Colbeck, Borchgrevinck, and the Finn Savio—and in this order cut their way upwards in the hard blue ice of the glacier. It was a long and laborious ascent, for each yard advanced had to be

cut step by step; but they persisted resolutely till the height of a few thousand feet was attained. Here further progress was impossible owing to the steepness of the ascent, and the only foothold they could obtain was such as could be cut by the pick of the alpenstock. Their position would have been trying to the nerves of the stoutest mountaineer. On their left rose an almost perpendicular wall, while on the right the glacier precipitated itself into a fathomless crevasse. A moment's hesitancy, a second's haste on the part of one of the explorers, would have plunged all to certain and terrible death.

Soon after their return from this journey a letter received from Camp Ridley caused the explorers considerable uneasiness, and determined the leader to make an immediate and hurried return to headquarters. It ran as follows, and was dated 20th September:—"On my arrival I found Mr. Hansen in pretty good spirits, but not as well as I had hoped. His legs were greatly swollen, and he walked with more difficulty."

On the 4th of October Borchgrevinck set out, and on his arrival at Camp Ridley he found the worst had not been told him. Hansen was in a most critical condition, and unable to take any nourishment. He grew daily worse, and in the afternoon of the 14th he passed quietly away. "He met his end calmly, thanking his comrades for all they had done for him, and wished one and all a last farewell. He expressed a wish to be buried at the foot of a big boulder 1000 feet up Cape Adare. He was buried on the 20th with

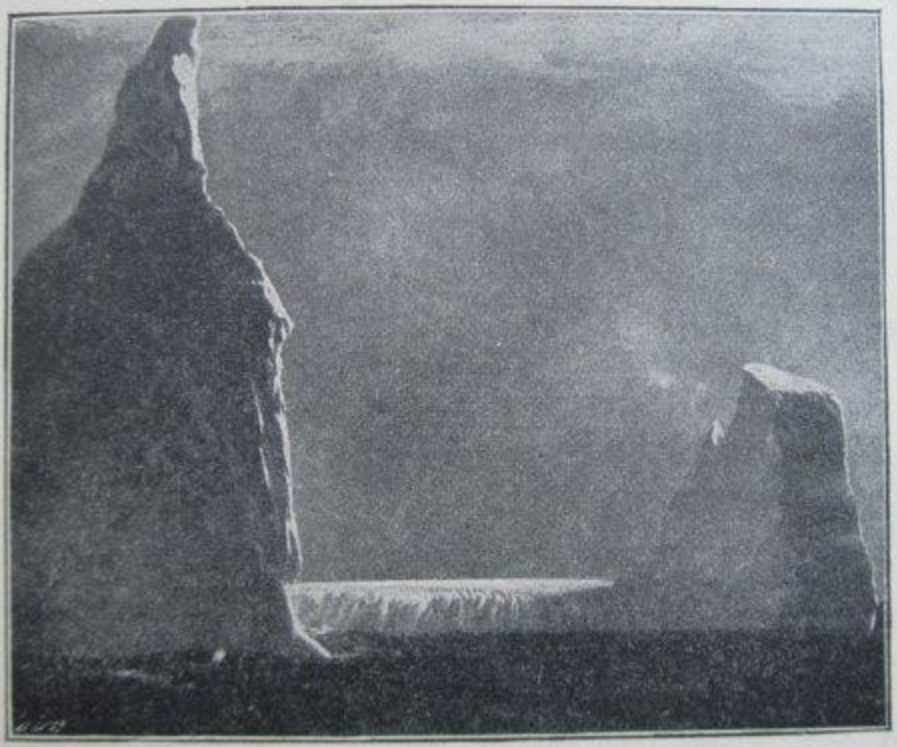
some flowers on his breast which his wife had sent in letters to Hobart before he left for the south.

"The Lord's Prayer was read over his coffin, which was then placed on a large sledge and covered with the Union Jack. A light snow which had fallen in the night made our heavy task somewhat easier. It was a sad and hard task to bring our dead companion to the place where he used to ascend to the top of the cape. Here, after a brief funeral service, he was laid in his last low, narrow bed."

During the remainder of the month several sledge expeditions were sent out in various directions, and returned with good results. On the 9th of November Borchgrevinck, accompanied by one of the Finns, set out with three sledges and thirty dogs on a journey to the east of Cape Adare. During this trip the collapsible canvas boat proved of great service as a sleeping place, and enabled the explorers to go to rest without much fear of the consequences of the ice suddenly breaking up. And there was need of such a precaution, for as they travelled along the continual roar of the far-distant Antarctic breakers sounded in their ears. Frequently, too, they had to ferry themselves across large cracks, thus saving a long and wearisome detour, which otherwise would have been necessary.

As they journeyed along the evidence that the south was waking from its winter sleep became more and more frequent, and huge ice masses could be seen sailing away towards the south-east. Through the rise and fall in the temperature, pebbles and rocks

were continually loosened from the perpendicular walls of Victoria Land, and great gravel rushes descended on to the ice, thus making it more than ordinarily dangerous to travel near the base of the cliffs. In addition to this, the treacherous nature of the ice, which



A SOUTH POLAR ICEBERG.
*(From a Photograph.)*

at this time was liable to give way suddenly and in unexpected places, made the risks of the explorers quite out of proportion to any possible results that might be attained, so there was nothing for it but to return.

The explorers now began to look northward in expectation of the arrival of the *Southern Cross*, but

as far as they could see the immense bulk of the ice pack stretched away in every direction, and the chilling thought crossed their minds that perhaps the ship might not be able to reach them. They therefore decided, while hoping for the best, to prepare for the worst, and lost no opportunity of adding to their store of food seal beef, penguins, and eggs. The weather was now clear and calm, and, in comparison with what they had encountered, warm.

On the 10th of December Borchgrevinck, Klövstad, and one of the Finns set out on a final sledge journey into Robertson Bay, principally for the purpose of securing specimens of the eggs of the different birds. It was on this journey that one of the most important discoveries of the expedition was made, namely, insects of three distinct types.

Having pitched their tent in Crescent Bay on Duke of York Island, they made a sledge journey into the bay towards the south-east, an arm of Robertson Bay at the end of which they discovered a low approachable land. "It was a kind of beach arising from the bay to a height of about 30 feet. This land was partly formed by the glacier and partly by stone avalanches from the mountainside. Before returning, we thoroughly explored the vicinity to a height of 1700 feet, at which elevation we found vegetation." Satisfied beyond measure at the success of their venture, the explorers turned their faces towards Cape Adare, and camp was reached after a tiresome and comfortless journey.

New Year's Day broke bright and clear, and on

looking back at what they had accomplished, the explorers felt that they had just reason to be proud of their record, which, though it fell short of their aspirations, had transcended their hopes.

One morning one of the explorers, who had turned out early to attend to some special duty, was astonished to see a strange figure moving over the ice towards him. It was so unusual to encounter any but their own party, that now to know that there was a tenth man seemed, to say the least of it, uncanny. His doubts and fears were, however, quickly set at rest, for the new-comer hailed him, and in an instant he recognised Captain Jansen of the *Southern Cross*, who had just arrived, and decided to give them a welcome surprise by bringing their letters.

In few words all the happenings of the last few months were told him; then quietly he opened the door and banged the postbag down on the table, in the most approved official style, and yelled "Post," in a voice that might have been heard miles off. No time was lost in opening the precious budget, and each man quietly withdrew to read over the news from home and the dear homeland.

Without loss of time preparations were made to take on board the *Southern Cross* the provisions and other necessaries from Camp Ridley, leaving only behind the coal and some superfluous provisions which it was thought might be of service to some subsequent expedition. On the evening of the 2nd of February they steamed southward, and early on the following morning

Possession Island was reached, where a landing was effected. "The island was covered with snow, and presented quite a different appearance," says Borchgrevinck, "to that which it bore on my former visit in 1894. We approached the solitary pole which had faced the Antarctic for five years. Since I had closed the iron box no human beings had been near it.

"It was an interesting moment as we surrounded this historical place, while I opened the box and read the letter aloud. Then all the members signed a fresh letter, which I left in the box."

Sailing southwards, and keeping as close to the land as possible, the coast-line was mapped as far as Coulman Island, where a party again landed—the first that had ever trodden the shores of the island—and collected specimens of rocks and vegetation. Steering westward and to the south of a conspicuous cape—which Borchgrevinck named Constance, after his wife—they came to Lady Newnes Bay, an opening in the seaward edge of the ice sheet that descended from Victoria Land. Here some very important observations were taken, by means of which it was afterwards possible to locate the present position of the South Magnetic Pole.

Proceeding southwards under steam latitude 74° 32′ was reached. Towards the west and north-west land was seen, and thither the navigators shaped their course. After sailing about 20 miles they discovered a promontory which on nearer approach was found to be almost identical with that at Camp Ridley, except that there was an entire absence of penguins. Further

exploration discovered a number of wonderful caves, passages, and arches. This promontory and the land to the west of it was named after Sir George Newnes, who had sent out the expedition, Newnes' Land. To the bay the name of Southern Cross Fiord was given.

While the magnetic observers were busily employed, the rest of us ascended the high ridges of this remarkable land. When we reached the crest, some 700 feet up, we were startled by looking over a precipice into a huge cauldron, the bottom of which was even below the sea-level, but guarded against the waters of the cove to the west by a narrow ridge of brimstone. The south-east part of this cauldron was formed by the straight broken base of Mount Melbourne.

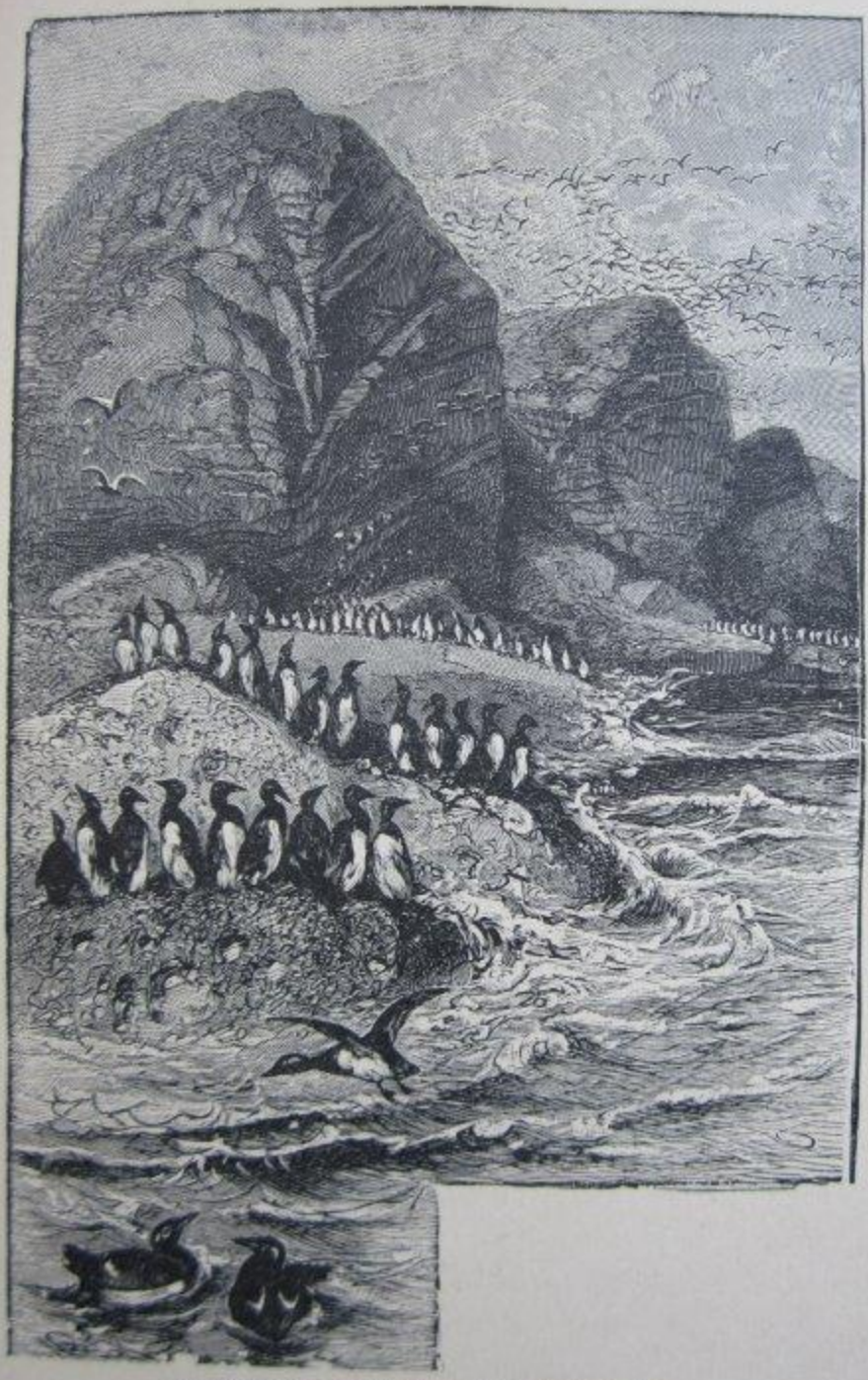
Further examination of this interesting land had to be put off till another day owing to the threatening look of the weather, and the explorers had to hurry back to the ship. Still steering southwards, two islands were discovered and named after King Oscar of Norway and Sweden, and Sir Clements Markham. A few days later a landing was effected on the pebbly beach on the western side of Franklin Island, where many interesting specimens of rocks and vegetation were obtained. Other landings were made at various points, and a rich store of treasures for the botanist and geologist was collected.

On one of these occasions Borchgrevinck was within an ace of losing his life, and his escape seems little less than miraculous. He had landed near the foot of Mount Terror, where the beach was formed by a gravel rush from an overhanging rock some 500 feet above;

it was about 10 feet broad, and its highest point was not more than 4 feet above the level of the sea. While he and Jansen went to collect specimens of rocks and vegetation, the boat returned to fetch a camera. Suddenly there was a tremendous noise overhead, and the next instant an enormous mass of ice, many tons in weight, plunged into the sea from a neighbouring glacier. Knowing well what would follow, they rushed to the highest point of their island and flattened themselves against the perpendicular wall of the mountain.

Hardly had they done so than there arose from the sea a mighty rushing wave, caused by the plunge of this million-ton mass of ice, which swept onwards towards the ledge on which they stood, gathering force and volume as it came. With a roar and a crash it struck the cliff, engulfing the explorers and sending clouds of spray high over their heads, while they clung to the face of the rock with a tenacity such as only an emergency of the kind could supply. The wave fell back into the sea, leaving them drenched and shaken but uninjured. The next few waves were smaller, but the drag of the water as it returned from the cliff tried them almost beyond their strength.

Meanwhile, Lieutenant Colbeck and the two sailors, returning from the ship, experienced the full effect of the wave, and with difficulty saved the boat from being swamped. He saw, too, the peril of those on shore, and rowed in rapidly, fully expecting to encounter the worst. Great, therefore, was his surprise to find them, beyond



A SEABIRDS' HAUNT IN THE ANTARCTIC.

the thorough drenching they had received, little the worse for their adventure.

Still following the southward track, the *Southern Cross* steamed past Mount Terror, the cone of which was encased in ice, and no evidence of activity could be seen. From the crater of Mount Erebus, however, a dark cloud of smoke shot upwards at intervals. The ship was now encased in ice several feet thick, and long icicles hung down from the rigging. All on board suffered severely from the cold, but there was no thought of turning back.

On the 16th of February a break was seen in the barrier about a mile wide, between two conspicuous heads, opening into a large oval basin about five miles in diameter. Into this fine natural harbour the ship was steered, and made fast to the ice. Once more Borchgrevinck landed with sledges, instruments, and provisions, and, accompanied by Lieutenant Colbeck, set off to the south. They succeeded in reaching 78° 50′, "the farthest south ever reached by man."

The rapid fall of the temperature now gave the explorers warning that it was time to think about returning unless they wished to remain prisoners in the ice where they were. Accordingly, on the 19th the return voyage was commenced, and, as it turned out, not a moment too soon, for the ice was already three inches thick, and through this the *Southern Cross* had to force her way out of the harbour. Borchgrevinck's intention had been to make for Mount Terror, but this was rendered impossible by the prevailing south-westerly winds. He therefore shaped his course for

Franklin Island, hoping to be able to obtain further magnetic observations; but here, again, the weather frustrated his plans. The island was reached on the morning of the 24th, and a boat was lowered to take the magnetic observers ashore; but hardly had they landed when the threatening appearance of the weather caused Borchgrevinck to recall them, and almost immediately afterwards the storm burst.

The ship plunged into the heavy seas, and the spray froze almost as it fell on men and spars and hung down from the spit in long icicles. On the 26th of February the latitude of Cape Adare was passed, and two days later they crossed the Antarctic Circle. "The talk in cabin and forecastle was now all on home and home-coming. The members visited each other in their cabins and discussed the fact of returning. A strong longing for sunny skies came over everyone, a longing to see something else than bare rocks and snow, to see colours other than the monotonous white, real green grass, and, above all, trees."

At midnight on the 30th of March Stewart Island was reached, and the *Southern Cross* dropped anchor outside Paterson Inlet, to wait for daylight, when she steamed slowly into the bay. On the following morning a cable was sent to England containing in a few brief sentences the story of the voyage. It ran as follows:—

"Object of expedition carried out. South Magnetic Pole located. Farthest south with sledge record 78° 50′. Zoologist Hansen dead. All well on board.—Borchgrevinck."

## CHAPTER X.

### THE "DISCOVERY'S" DISCOVERIES.

THE best appointed, best conducted, and most successful expedition that has ever entered the polar regions sailed from the Thames on the 31st of July 1901, on board the *Discovery*, a vessel which had been specially designed and constructed to carry on, if not to complete, the great work of Antarctic exploration. She was the sixth ship of her name famous in the maritime annals of England. The first *Discovery* explored Hudson Strait, and the second navigated Hudson Bay; the third accompanied Captain Cook on his last voyage; on board the fourth Vancouver explored the western side of North America and sailed round the island which bears his name; and the fifth accompanied the *Alert* in the famous Arctic expedition of 1875.[1]

The ship carried a crew of forty-six souls all told, under the command of Robert Falcon Scott. The

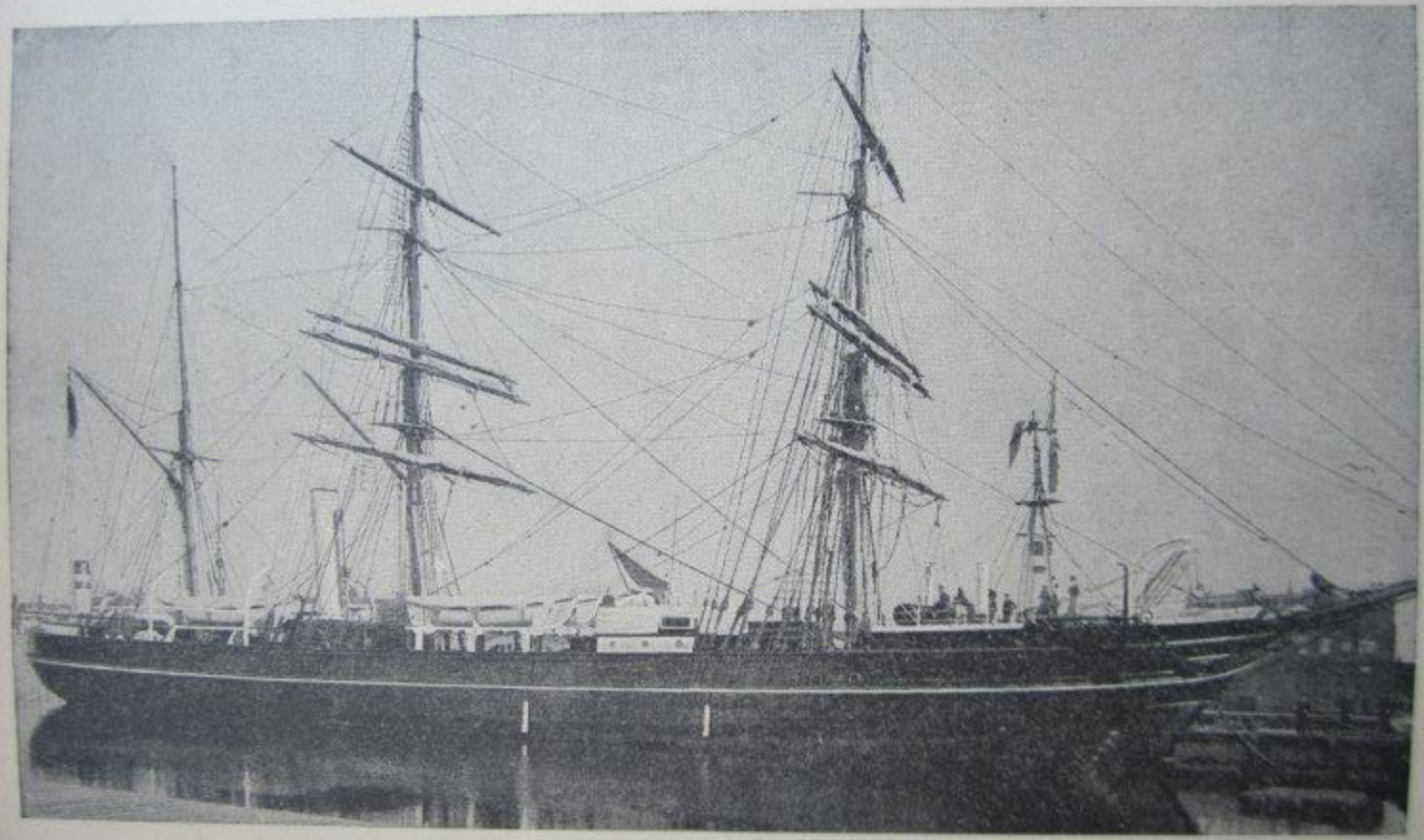
[1] See *Stories of North Pole Adventure*.

following list of the officers, with their respective duties, may be of interest :—

Navigator and second in command, Lieutenant Albert B. Armitage, R.N.R., in charge of the magnetic observations ; first lieutenant, Charles W. Rawson Royds, lieutenant R.N., in charge of the meteorology ; second lieutenant, Michael Barne, lieutenant R.N., assistant magnetic observer, in charge of sounding apparatus ; third lieutenant, Ernest Shackleton, sub-lieutenant R.N.R., in charge of sea-water analysis, ward-room caterer, in charge of hold, stores, and provisions.

On the 5th of August the *Discovery* anchored off Cowes, in the Isle of Wight, when King Edward, accompanied by Queen Alexandra and the Princess Victoria, honoured the explorers with a visit. "The genuine interest which the Royal party took in the ship and in every department of the scientific work was most gratifying and stimulating to everyone on board," says Dr. H. R. Mill, who accompanied the expedition as far as Madeira. "They not only visited every part of the vessel, but inquired the use of each piece of apparatus shown them, and watched its working with the keenest interest. The Queen was particularly attracted by an instrument for measuring the colour of the sea by comparison with a graduated series of solutions ranging from pure blue to yellowish green, and after seeing how it was used, herself explained it to the King."

There was indeed much to be seen calculated to arouse keen interest. There were thermometers marked to record a lower temperature than had ever



THE "DISCOVERY" AS SHE LAY IN THE EAST INDIA DOCKS, LONDON.

before been known, wind gauges, and a sunshine recorder to keep a continuous record when the sun is above the horizon during the whole of the twenty-four hours. There were specially constructed bottles for securing samples of ocean water, and at the same time recording its exact temperature; and box kites, fitted with aluminium meteorographs, for reaching high elevations in the air. In one part of the ship was a space known as the non-magnetic area, and within it were the zoological and botanical laboratories, which from their situation were not allowed to contain as much as a file or a wire bottle-brush.

"The Royal visit was brought to an end by the conferring of the R.V.O. on Captain Scott—and this mark of the King's confidence in him gave pleasure to all—and the presentation of signed portraits to the ward-room mess. The friendly cordiality which characterised the King's brief speech of farewell to the ship's company will be a heartening memory in many a dreary hour of Antarctic winter."

At noon on the following day the *Discovery* sailed away, and on the 15th of August arrived off Funchal in Madeira. After some minor repairs had been carried out on her rigging she sailed again on the following day. Nothing of interest or importance occurred during the remainder of the voyage. The various members of the staff perfected themselves each in some special department of his work, and the men were interested and instructed in the work of the expedition by a course of lectures with lantern slides. The interest

they took in these lectures was as gratifying to the lecturer as their subsequent questions were sometimes puzzling.

After a short stay at Simon's Bay the *Discovery* shaped her course for New Zealand. During this run a succession of westerly gales was experienced, and the ship proved herself thoroughly seaworthy. In polar voyages the first ice is always an important event, sometimes not unattended with danger, but the *Discovery's* first ice was quite harmless, being only about two feet square. Soon afterwards the ship received her first Antarctic salutation by a fair-sized piece striking her bows. That was on the 16th of November. At noon on the same day long streams of ice were encountered, and on soundings being taken the depth of the water was found to be 2200 fathoms. Macquarie Island was reached after a voyage of fifty-two days, and on the 29th of November the ship in safety reached the harbour of Lyttleton.

The explorers received an enthusiastic welcome from the people; all harbour and dock dues were remitted, and everything was done to make their stay pleasant and memorable. During the outward voyage the ship had shown she was not altogether water-tight, and leaks had been found in the holds and in the engine-room, and now she was making enough water to necessitate an hour's daily work at the hand pumps. To have faced the rigours of an Antarctic campaign with the ship in such a condition would have been madness, so she was taken into dock and caulked

throughout. Fortunately, this stopped the leaks; there was, however, a weak place undiscovered in the fore-peak which was to cause trouble and anxiety later on.

After a pleasant sojourn in the Britain of the South, as New Zealand has been called, the *Discovery* set sail on Christmas Eve. She carried provisions for two years and nine months; by careful stowage it had been possible to get 285 tons of coal into the bunkers, and, in addition, she carried 65 tons on deck, in all 350 tons. On the upper deck were also forty-five sheep and twenty-three dogs.

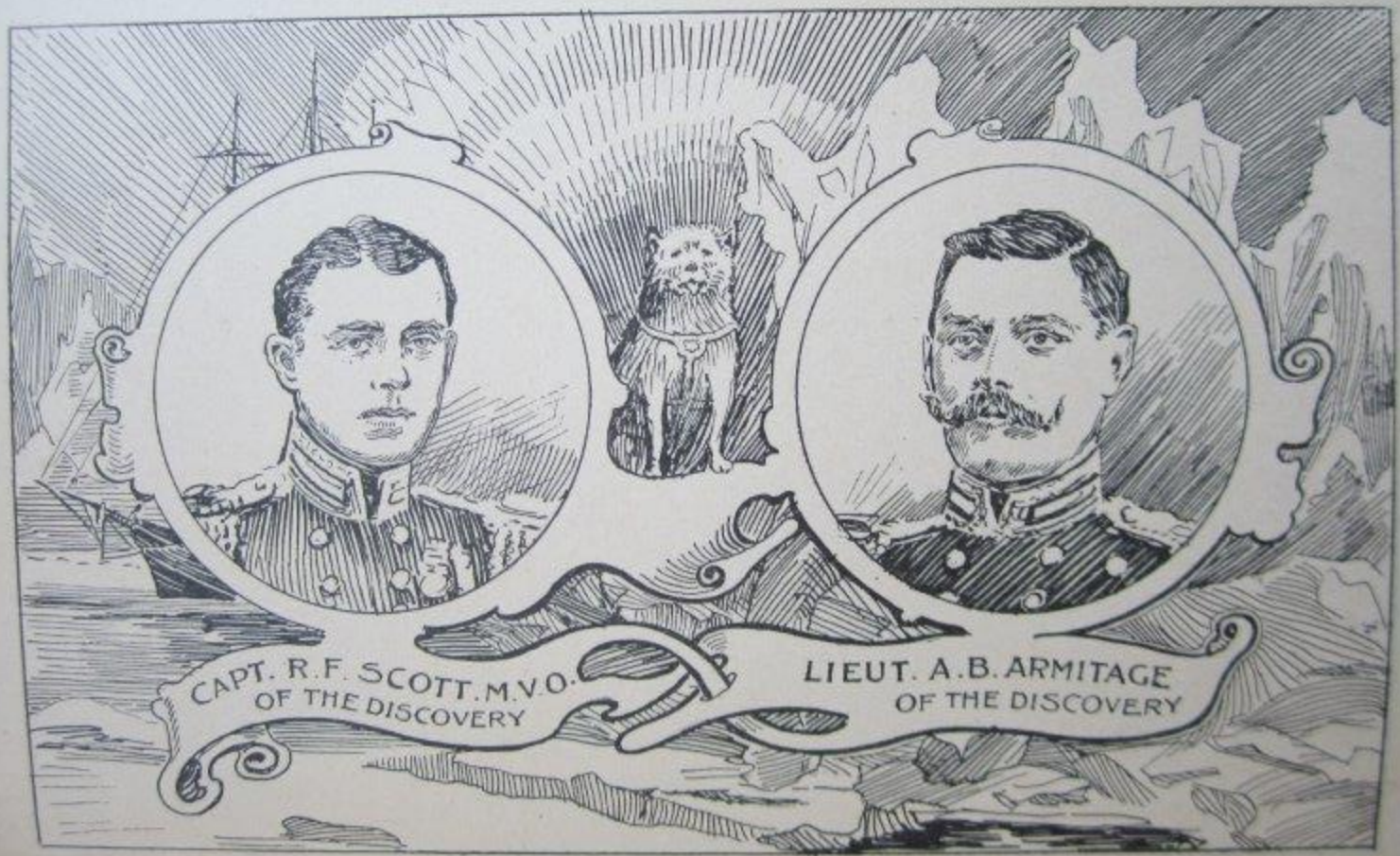
Early on the morning of the 4th of January 1902 the Antarctic Circle was crossed. As the ship advanced the pack became much heavier, and only slow progress could be made. Forcing their way through rotten floes of very large area, they found several leads of open water, and crossed the southern edge of the pack, beyond which clear open sea was distinctly visible. Cape Adare was reached on the evening of the 9th, the passage into Robertson Bay having to be forced through a line of thick pack-ice. Here, having taken magnetic observations and watered the ship, a record of their visit was deposited, and at three o'clock on the following morning they sailed away to the southward, encountering very heavy pack-ice running with the current northwards.

After a hard struggle of several hours clearer water was reached, and the course continued southwards in the teeth of an ever-increasing south-easterly wind

and continuous streams of pack-ice. When Coulman Island was reached on the night of the 13th the weather was so bad—and the glass gave promise of still worse in store—Scott decided to take shelter under the island. It was well he did so, for during the night the storm broke, and in the morning the wind was blowing a full gale, from which the island afforded them only meagre but, notwithstanding, very welcome shelter. The terrific force with which the wind swept down from the heights may be judged from the fact that the ship was repeatedly driven to leeward, and narrowly escaped collision with the bergs.

On the 15th the wind fell rapidly, and in the afternoon a record was deposited at Wood Bay. Three days later the *Discovery* passed Cape Washington, in the neighbourhood of which the remarkably shallow sounding of eight fathoms was obtained. There was now an entire absence of pack-ice, and as they proceeded they were enabled to trace the coast-line without difficulty, and to observe the distant mountains. As they sailed along, indications were observed which pointed to the possibility of finding a good harbour in the south-east. Thither, accordingly, the course was shaped, through very heavy ice, which made progress difficult and slow, so that it was not till the evening of the 20th that the ship entered an inlet that had every appearance of being likely to form a good winter haven; but it was afterwards found to be quite unsuitable, and was abandoned.

As they sailed along the edge of the barrier, it was




OFFICERS OF THE "DISCOVERY."

found to be most irregular, varying from 30 to upwards of 200 feet high, and the soundings taken were equally extreme, ranging from 70 to 100 fathoms. "On the morning of the 30th an opening in the fog showed high rising snow slopes in the background descending gradually towards the sea, until they fell away into heavy ridges and precipices 300 or 400 feet in height. Though morally certain we were in the vicinity of land, I was glad when several dark patches loomed out of the mist, and were quickly distinguished as patches of bare rock. They are evidently the sharp spurs of hills which are otherwise completely snow-capped."

At this point Scott decided to turn back, as it was manifestly unwise to think of passing the winter here, and shaped his course for Victoria Land, arriving at Hut Point on the evening of 8th February. Here it was decided to erect their winter quarters, a task which was greatly interrupted by strong south-easterly winds, which, while delaying the work in hand, prevented the despatch of early sledge parties, as had been intended. The work was, however, pushed on with the utmost despatch; coal, oil, and provisions were landed, the magnetic huts were erected, and by the 1st of March everything was in readiness to carry on the further work of the expedition in all its departments.

On the 3rd of March a sledging party, including Barne, Skelton, and eight men under Lieutenant Royds, set off for Mount Terror. As they proceeded, the snow gradually grew softer, and the work became

so fatiguing that Royds decided to proceed with two companions on ski, and send back the remainder of the party to the ship. By this time the ice had broken away well past Cape Armitage, and it was necessary for those returning to cross the hills in order to regain the ship. All went well till the 11th, when the party camped for lunch on the crest of the hills. Suddenly the wind sprang up and the temperature rapidly fell. All suffered severely from frost-bites, and imagining themselves nearer to the ship than they actually were, they decided to return on board, leaving the sledges where they were.

They accordingly set out, but before they had gone far the gale increased, and they were enveloped in a whirl of snow blinding and stupefying in its effects. Soon they entirely lost their bearings. Barne did his utmost to keep the party together, the more so when it became evident that the place where they were was affording a very insecure footing. Presently one of the men, named Evans, slipped, and like a flash disappeared from sight. After repeated shouting, and receiving no reply, Barne determined to see what had become of the man, and after warning the others not to stir from the spot, calmly and deliberately started to slide down the slope in the direction the sailor had taken. He was absolutely convinced that the slope was one close to the ship and well known to all on board, and that he would have no difficulty in regaining the summit, and would be able to bring the others on.

Time passed, and he did not return. Then another of the sailors decided to follow. He did so, and was immediately lost to sight. When none returned, a seaman named Hare decided to go back to the sledges to change his footgear, and the remaining five, after a long wait, started along the slope, as they thought, towards the ship, led by a sailor named Wild. By great good fortune he had nails in his boots, for after proceeding some distance in the thick snow he suddenly, and without a moment's warning, found himself on the very edge of the cliff, and with difficulty saved himself from slipping over into the sea. His presence of mind did not desert him, and he gave a warning shout to the others to stop. All were able to do so except one named Vince, who, missing his footing, shot downwards past Wild and disappeared. With great difficulty the remaining four retraced their steps, and reached the crest of the hill from whence, taking a more easterly course, they came on some landmarks, and found their way to the ship.

A large search party was at once sent out, and the siren was kept going to enable any who might survive to find their way back, or, if this was impossible, to cheer them with the knowledge that help was on its way. The search party with no little difficulty reached the spot where the sledges had been left, and there they found Barne and the two sailors, half frozen and perfectly dazed, so that none of them could tell how they had reached the summit. No trace could be found of Hare or Vince. On the following day

a further prolonged search was made, but without result.

Being unwilling to abandon one of his ship's company while the remotest chance of rescue remained untried, Scott on the following day got up steam to see if by any chance there was an icefoot or any projection on which Vince might have fallen. They were just about to sail when, to the amazement of all, Hare was seen making his way down the hill opposite the ship. He was promptly brought on board, and, miraculous as it seems, was found to be neither frost-bitten nor in any way the worse for his long exposure.

He had been unable to find the sledges, and had wandered aimlessly about, till, overcome by fatigue, he lost consciousness. Thirty-six hours later he awoke, to find himself buried in snow and only a trifle stiff. Great was his astonishment when he heard that he had slept through a whole day, as he thought it to be only the morning after the accident. When the ship was taken round to the spot subsequently no trace could be found of Vince, and it became certain that he must have fallen directly into the sea.

"Though Mr. Barne made an error in breaking camp in a snowstorm," says Captain Scott, "it must be remembered that he, in common with all, was inexperienced in the climatic conditions of these regions; that he imagined himself much closer to the ship than he was; and that his party, expecting higher temperatures, was very ill provided with fur clothing, and would have been most uncomfortable in their tents.

The event proved a lesson to all, and in his subsequent expedition he took exceptional and praiseworthy care of his men."

A few days later the remaining officers returned to the ship, having been unable through the severe weather to reach the spot for depositing the record, and being unable to delay owing to shortness of provisions.

On the 1st of April Captain Scott, accompanied by Armitage and twelve men with the dogs, started to lay out a depôt to the south-east. On getting to the barrier surface intense cold was experienced, and it soon became evident that little progress would be made. The dogs were out of condition, the men were unaccustomed to the work, and the fur clothing proved unsuitable. For three days they struggled on till, the temperature having fallen still lower, Scott decided to return to the ship, where preparations were being hurried on against the approach of winter. The awning was spread and everything done to make things as snug as possible.

"The winter passed very comfortably," says Scott. "The men remained cheerful throughout; plenty of work was found for them out of doors, and a regular routine was maintained. It was not until the 3rd of May that a strong southerly gale brought the first heavy snowfall, allowing the decks and sides of the ship to be partially covered with snow, which greatly improved our comfort below.

"During the long and trying days of winter, officers and men alike did their utmost to keep things going.

The observations were kept. Mr. Hodgson was always out and about, keeping holes open in the ice for his nets and fish traps. Bernacchi tended his magnetic instruments with zealous care, and took regular observations with the electrometer. Ice measurements were taken and tidal observations made, and other experiments conducted to forward the successful results of the expedition."

As soon as it was possible sledge trips were started in various directions to spy out the land. On the 17th of September Captain Scott set out, but at the end of 17 miles was forced to turn back owing to the severity of the weather. He started again, however, on the 23rd, accompanied by Shackleton, the boatswain, and the dogs. Their progress was rendered difficult and dangerous by heavy ice upheavals, cracks, and crevasses. Turning to the eastward, they crossed some very disturbed ice with deep crevasses, into one of which the boatswain fell, but was saved by his harness catching in a projection. Proceeding, they reached a point about 60 miles from the ship, where, having selected suitable leading marks, a depôt was established. "From this point land could be seen to the south-west, continuing the line of Victoria Land, but from this direction an unbroken horizontal line indicated the continuance of the barrier surface."

On his return to the ship from this journey Scott found that the party under Armitage had come back more or less in a broken-down condition, and on examining into the cause it was found to be scurvy,

and there was no doubt that it had been brought on by the severe work and exposure to which the men had been subjected. It was a serious situation, for it was impossible to say how many of the men might be similarly infected, the disease lurking unsuspected till the moment that a call was made on them. It was a case for prompt action, and Scott acted with promptness. A thorough medical inspection of the whole ship's company was held, and revealed the fact that there was a taint of the disease both in officers and men, and steps were at once taken to counteract it.

All tinned meats were promptly discontinued, their place being taken by seal flesh; lime juice was given out, and an extra allowance of bottled fruit issued. Further, the ship was thoroughly disinfected. As a consequence, the disease spread no further, and those affected rapidly recovered, being aided, no doubt, in no small measure by the inspiriting effect of the lengthening days.

On the 4th of October Lieutenant Royds, accompanied by Skelton and four men, left the ship for Mount Terror to renew the record previously left at the penguin rookery. On their arrival the party were met by a heavy gale, which raged ceaselessly for five days, during the greater part of which the men were kept close prisoners in their tents, while the snow steadily accumulated around them. The cold was terrible, and Royds suffered severely from cramp; and so, when the gale ceased, Skelton started with two men to find the record, a task which he accomplished without difficulty. Next

day he and his companions, roped together and carrying ice axes, made a successful descent to the sea-ice, where he had previously noticed a large number of emperor penguins. He was amply rewarded for his daring by securing several specimens of young emperor penguins in down and a series of capital photographs and notes.

The party returned to the ship on the 24th, experiencing on the way one of the lowest temperatures (57°) recorded on any journey.

## CHAPTER XI.

### THE "DISCOVERY'S" DISCOVERIES—*Continued.*

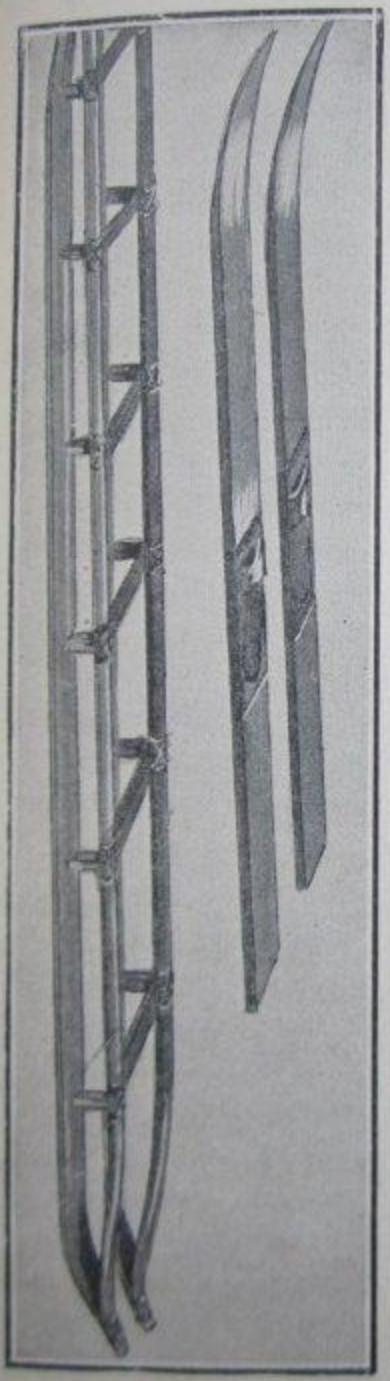
THE preparations which had in the meantime been busily going on for the great trip to the South were now completed, and on the last day of October Barne left the ship with eleven men to act as a supporting party. Their instructions were to make for the depôt which had been established off the Southern Cape. Two days later Scott, accompanied by Shackleton and Dr. Wilson, left the ship, taking with them nineteen dogs. The animals were in splendid fettle, and though each sledge was loaded with a weight of fully 100 lbs., they were so vigorous that nothing could restrain them but some of the party sitting on the sledges. Such good progress was made that they caught up Barne's party that night just as he was starting on a night march to make up for loss of time he had suffered through bad weather.

On the 10th of October the depôt was reached, and

the explorers started out two days later. The dogs were still so fresh that they far outdistanced the men, and to restrain them their loads were added to till they were carrying the whole weight, and this without showing any signs of weariness. As the services of the supporting party were thus rendered unnecessary, and latitude 79° 15′ had been reached, it was sent back to the ship.

So far all had gone well, and there was every prospect that a high latitude would be reached. Soon afterwards, however, the whole aspect of things was changed by the sudden and unaccountable breakdown of the dogs. Fearing that perhaps they had been too hardly worked, Scott rested them and increased the quantity of their food, but all to no purpose. As the southward journey was continued the explorers found they could only advance half a load at a time, and before long that reduced burden was too much for the weak and exhausted creatures to drag along unaided.

Journeying on to the south, the explorers passed the 80th parallel on the 27th of November, and at this point their progress became so extremely laborious that it was found necessary to establish another depôt. The course was accordingly altered to the south-west, but it was not till the 15th of December that the explorers were near enough to the land to obtain good leading marks for the depôt, in which three weeks' provisions were placed. Depôt B, as it was called, was situated in latitude 80° 30′, about 7 miles from a snow-covered headland which formed the northern extreme



TYPES OF SLEDGE AND SKI RUNNERS USED BY THE MEN OF THE "DISCOVERY."

of a mass of land with high and irregular ranges of mountains in the background.

As the explorers continued along the coast, the surface was often sticky and soft, and it was invariably in this condition close to the land. "We had now arrived in latitude 82° 17′, longitude 163° E., and were close to a cape which bounded the northern side of another apparent strait running in a north-westerly direction. To the west-south-west there was a range of magnificent mountains, and another range of great altitude lay to the south, close to the coast-line, which continued as far as could be seen."

An attempt was

next made to reach the land to obtain rock specimens, and after proceeding about four miles on ski the explorers were confronted by an immense chasm about a mile in width, and filled with great irregular masses of ice. "With the aid of a rope, and with much exertion, we commenced to climb across and around these blocks. As we proceeded they became sharper in outline, and much less snow lay about them. When within a few hundred yards of the other side we found that the inner boundary of the chasm consisted of a huge perpendicular ice-foot trench. A gentle slope descended from the foot of the cliffs to the icefoot, and the blocks of ice that lay in the chasm had evidently calved from it. As it was obviously impossible to climb this ice wall, we were forced to return to camp."

On the 1st of January the explorers started to return to Depôt B. The dogs were quite worn out, and not of the slightest use; indeed, on the 9th they were unharnessed in the hope of keeping some of them alive. To add to the difficulty of the position, fog came on, and it was no easy matter to know which way to travel. For days the sun, the wind, and even the end of a cloud were their only guides, and seldom a day passed but one and sometimes all failed. At length the time came when there were but two days' provisions left, and the depôt was not in sight, though from his reckoning Scott knew it could not be far off—the difficulty was to find it. Camp was accordingly pitched on the morning of the 13th, and, strangely enough, at noon on

that same day a momentary clearing of the mist showed the depôt flag flying about two miles to the northward.

On reaching this depôt the commander hoped to be able to make another attempt to reach the land, but his plans were frustrated by the sudden and alarming breakdown of Shackleton. He had for some time been showing the effects of the recent hard work more than the others, and had suffered from shortness of breath. He gradually became worse, and it was seen to be imperative that he should reach the ship without delay. The situation was awkward in the extreme, for by this time the dogs were all gone, and as the sledges had to be hand drawn, every man was of consequence. He was, however, exempted from this duty, and for a while it seemed as if he was making progress towards recovery. He kept up well till the 28th of January, when he was again thrown back by a snowstorm, and for awhile his condition caused his companions grave fears for the worst. Two days later he was sufficiently recovered to push on again, and managed to reach the ship. He subsequently completely recovered, but as Scott was of the opinion that the health of an executive officer should be above suspicion, and the doctor said Shackleton should not risk further exposure, he was invalided home.

The other sledging parties that had been sent out had by this time returned safe and well. It was an interesting story that Lieutenant Armitage had to tell. Starting on the 29th of November, accompanied by Skelton and ten men and a supporting party con-

sisting of Mr. Ferrar, the doctor, and seven men, they made their way towards the great glacier that descended between precipitous granite mountains, and reached a point at which it turned abruptly to the south. They had now travelled 15 miles over the surface of the glacier, and ascended to a height of nearly 4000 feet.

Continuing the ascent, they reached a range of remarkable bare granite mountains, at the foot of which the glacier branched off in two directions. Choosing the right-hand one, the party proceeded across heavily crevassed ice in a north-westerly direction. "The surface was found to be very much cut up, being in parts like a ploughed field and in others like a great glass dome scarred and cracked, and through the cracks no bottom could be seen. A line of sticks was placed at intervals during the ascent to note what movement the glacier made, and this was afterwards found to be 3 feet 8 inches during a period of twenty-three days.

On the 2nd of January, at an altitude of 8000 feet, some of the men began to suffer from the effects of the rarefied air, and it was found necessary to leave them behind. Armitage, however, accompanied by Skelton and four men, persevered for another 1000 feet, when they found before them an open snow-covered plain, over which they travelled for some little distance. The snow surface was found to be soft with successive crusts 9 or 12 inches apart. Armitage thought he saw a slight descent of the land to the westward, but of this he could not be sure.

On the 6th of January the return journey was started, and thirteen days later the party succeeded in reaching the ship, after having accomplished a journey of which everyone who took part in it had reason to be proud. The sledges had often to be dragged up steep places one at a time, and this meant that the distance had to be traversed many times, so that sometimes the actual mileage bore no sort of proportion to the distance covered or the labour involved.

In England, meanwhile, those responsible for sending out the *Discovery* were busily engaged in equipping a relief ship. Mindful of the fate that had befallen the Franklin Expedition in the north from want of such help, no polar voyages have since been undertaken without securing the explorers a certain means of escape should disaster befall their own vessel. And that which was found advisable in the Arctic was absolutely necessary in the Antarctic. In the North it is possible for the explorer who has lost his ship to reach a point where help may be obtained, but in the South no such possibility exists, for the nearest inhabited land is hundreds of miles away, and between flows a sea in part little frequented and in part altogether out of the track of the great ocean carriers of the world's commerce. Hence the Antarctic explorer is entirely at the mercy of circumstances, and, should any untoward circumstance deprive him of his ship, is doomed to inevitable death.

A Dundee whaler was therefore purchased as a relief ship, and was named the *Morning*. Fitted out

with everything the explorers were likely to stand in need of—tinned vegetables, soups, sauces, herbs, pickles, and bottled fruit—she sailed away in command of Lieutenant Colbeck, another naval man with experience of ice navigation. She reached the polar regions in safety, and following in the track of the *Discovery*, she transferred the stores she had brought, and returned to civilisation with the news of what had been accomplished so far.

It was on the 2nd of March 1903 that the *Morning* took her departure, and after this the winter closed in very rapidly. The temperature fell, and though there was no snow, the weather became very gloomy. The remainder of the month was occupied in laying in a stock of sea meat and the flesh of the skua gulls for winter use. Fish traps were also set in holes in the ice, but their harvest was not sufficiently abundant to make any substantial difference to the bill of fare. Profiting by the experience gained, alterations were made to increase the comfort of the living apartments. Improvements were also made in the culinary department, the chief of which was the appointment of a new cook, who understood better than his predecessor that his business was not to spoil the food intrusted to him, but to prepare it in a nourishing way and serve it in an appetising manner. Acetylene gas was the light provided throughout the second winter, and gave a brilliant white light, "which had a most happy effect on the comfort of the community."

During the winter the men were kept employed

preparing for the next season's work, repairing sledges and renewing equipment. The health of the expedition was excellent, there not being a single case of sickness on board.

In his report of the doings of the expedition at this time, Captain Scott throws an interesting side-light on the thorough way they have in the navy. He says: "In drawing out plans for the coming sledging season, I thought it wise to fix its conclusion at a comparatively early date in order that all hands might be available to assist in releasing the ship should the opportunity occur. The date fixed was 15th December, as at this time in 1902 the open water was within 10 miles of the ship. In arranging the extended journey, I was confident it would be useless to attempt to penetrate farther to the south without dogs. My experience of the barrier surface, and some arithmetic, convinced me that a party of men could not hope to reach beyond the farthest point of the previous year, however amply supported.

"There remained many points of interest in connection with the junction between the barrier and the land, and especially in connection with some apparent straits which intersected the coastal mountains, and which we had only viewed at a great distance. In the second place, we did not know what lay to the south-eastward. We imagined the barrier to extend almost indefinitely in that direction, but we had no proof. Finally, I thought it possible, with the help of experience, to penetrate considerably farther to

the westward over the ice cap of Victoria Land. Our small complement only permitted of two supported journeys and one unsupported journey. I decided that the supported journeys should be to the south-west and west, and the unsupported journey to the south-east. The latter was intrusted to Lieutenant Royds, I arranged to lead the western party myself, and Lieutenant Barne was intrusted with the south-western journey."

With the return of spring preparations for the sledging were rapidly pushed forward, and on the 7th of September the first party set out to visit the penguin rookery at Cape Crozier, and it was timed to hit off the period of incubation, but in this it failed, for these extraordinary birds appear to breed in the coldest and darkest months of the year. A number of deserted eggs were, however, brought back, and two live chicks, to which one of the sailors named Cross gave up his sleeping jacket, though the temperature was continually below −50°. They reached the ship again on the 17th of September.

On the 12th of September Lieutenant Barne left the ship to place a depôt to the south, and returned eight days later, having experienced the lowest temperature on record for a sledging party, the thermometer registering as low as −68° and never rising above 60°. On this journey one of the sailors had a foot badly frost-bitten, which on two occasions had to be nursed back to life for more than an hour.

Scott himself started on the 9th of September to

find a new route which would enable them to avoid the tedious crossing of the range of foothills which had occupied so much time in crossing in the previous year. He discovered an easy road up the glacier, and placed a depôt at a height of 2000 feet at a distance of 60 miles from the ship. The return journey was accomplished in three days and a half, though the temperature was frequently below −50°. "I have mentioned these temperatures," says Scott, "because I believe they are almost, if not quite, without precedent in polar travel, and they therefore afford the best possible proof of the excellent state of health of the ship's company."

On the 6th of October Lieutenant Barne set out on the south-western journey, and from the start experienced an almost continuous south-westerly wind, accompanied by drift and snow. To add to their hardships, the surface over which they had to travel was extremely bad, and their progress was one long struggle from the time they left the ship till their return on the 13th of December. They had, however, made one discovery of the utmost importance among many others for an account of which it is impossible to find space, and that was the movement of Depôt A, which was found to have moved no less a distance than 608 yards from its original position. This was the only definite measurement of a barrier movement the expedition obtained.

On the 10th of November Lieutenant Royds, accompanied by Bernacchi and four seamen, set out for the

south-eastward, and accomplished what cannot but be described as a splendid effort. In a period of eighteen days they travelled a distance of 155 geographical miles from the ship, and this in spite of continuous south-west winds, thick weather, and heavy snowfall, and though their route lay across a dreary plain unrelieved by a single hillock or undulation. They had no supports, and the direction taken admitted of no depôts, so all necessaries had to be carried. Food was reduced to the lowest possible quantity consistent with safety and efficiency, and the marching hours averaged over nine a day. This, added to the monotony of the travelling, entitles this march to rank high among the feats of endurance and duty which embellish the records of the Royal Navy. The results obtained were in keeping with the importance of the journey. A uniform series of important magnetic observations were obtained, and temperature observations were extensively taken on the snow surface, in holes, and in crevasses. The temperatures go to show that the barrier is afloat far south of its northern edge, for the variation in the temperatures taken cannot be caused otherwise than by the presence of water.

Captain Scott, at the head of the western party, composed of Skelton and four sailors, left the ship on the 12th of October. Ascending the rough icy surface of a glacier, an elevation of 5000 feet above the sea-level was reached on the 18th of October. At this point, about 80 miles from the ship, the vexing discovery was made that the runners of three out

of the four sledges were worn out, which made a return to the ship imperative. The distance was accomplished in three days, the last march being one of 31 miles. Having effected the necessary repairs, another start was made on the 26th of October. Fogs and heavy winds delayed progress considerably, but in spite of that, and further trouble with the sledges, an elevation of 7200 feet was reached by the 4th of November. At this point a terrific windstorm came on, which compelled the explorers to remain in their tents for six days and a half.

Twice they essayed to continue the journey, but each time were driven back to their sleeping bags with bad frost-bites. At length, unable to endure longer the close confinement, Scott determined to make a move in face of everything. Fortune favoured them on this occasion, for the wind fell and they were enabled to set out, and succeeded in reaching a height of 8900 feet, and at this altitude they continued while they marched forward to the west. The constant west wind cut like a knife, the cold was intense, and the rime on the hard-frozen surface increased the friction and made the sledges more laborious to drag along. Slower and slower became their progress, weariness gave place to fatigue, but none would be the first to cry halt. At length one of the sailors could hold out no longer, his chest was giving him trouble, and on the 22nd of November the party was divided, greatly to the disappointment of those who had to return.

Selecting the two fittest sailors, Evans and Lashley,

Captain Scott resumed his march, and considerable progress was made; and although the number of the marching hours was increased, there were no further signs of fatigue. On the 30th of November latitude 77° 59′ S., longitude 146° 33′ E. was reached, and the return was commenced on the following day. In this latitude the summit of Victoria Land was found to consist of a vast plain nearly 9000 feet high. "I am inclined to think it is lower towards the north and higher towards the south," says Scott, "but that the difference in level is slight. The wind is almost continuously westward. There was evidence that during the winter it blows with great violence from the west-south-west, when what I believe to be the only snowfall of the year takes place. Everything points to an extremely small snowfall.

"There are slight undulations or saucer-shaped depressions the exact shape and extent of which it is impossible to determine; such could only be detected by differences of shade in the snow plane. The greatest difference of level seems to be 50 or 60 feet, and as the inclination is spread over a distance of two or three miles it is imperceptible under foot. Journeying east or west, we each day appeared to cross two or three long, low, irregular waves, the eastern faces and hollows of which were clothed with sastrugi of enormous height, whereas the summits and western faces were quite smooth and afforded a good travelling surface. After a somewhat adventurous return we reached the ship on Christmas Eve."

Some people are fond of saying that their work is never done, but with greater truth it may be said of the leader of an Antarctic expedition that his work is always beginning. Before setting out on the journey on which we have just accompanied him, Scott had supervised the making of a large tent in preparation for the summer work. He gave orders that this tent, together with such stores as were necessary, should be taken to the northward not later than the 15th of December and erected in a safe spot to the leeward of a small group of islands about nine miles from the ship. As soon as the various sledging expeditions came in the men were to be set to work to saw the ice near this camp; but when the time came, Lieutenant Armitage, who was in charge, was confronted with a totally different set of conditions than had been expected. The open water, which in the previous year had been close to the islets, was not now within 17 miles of the ship or 8 of the camp; he therefore started sawing near the camp, hoping that the edges would remain open and the floes could be detached when the outer ice had broken away.

On the 18th of December the work was begun, the men being divided into watches of nine, which by relieving one another kept one saw continuously at work. The ice was about 8 feet thick, and the greatest distance cut in four hours, the length of a watch, was 40 feet. It was heartless work, but it was steadily and cheerfully carried on though the slush in the cuts froze almost as quickly as they were made.

Such was the state of affairs when Scott returned. Seeing how useless it was to persevere any longer, he broke up the camp and the men returned to the ship. It was manifestly impossible to free the ship, and it now became a question of what was to be done. Before he could decide this, it was decided for him by the arrival of the relief ship *Morning*, accompanied by another vessel, the *Terra Nova*, which brought instructions that the *Discovery* was to be abandoned. To everyone on the spot the ultimate release of the ship from the ice was only a question of a little time, and the order to abandon cast a gloom over the ship. It was not, however, obeyed without a further effort at deliverance. The *Terra Nova* with all speed charged the ice, but beyond knocking a few pieces off the edge accomplished nothing. Some explosives were next tried, but the distance was too great to give any hope of a successful result.

Nothing remained now to be done but to arrange for the removal of the ship's records and the men's personal belongings to the relief ships. This work was started on 15th January, and was accomplished in something of an original fashion. Half-way between the ships a large tent was pitched on the ice; and here were deposited the loads taken from the *Discovery*, which were then carried on by sledge teams to the relief ships. Working in this way, all collections, registers, instruments, and valuable books had been transported by the end of the month. About this time also the ice began to break up, a heavy swell entered the strait and was

felt very distinctly on board. The ice went out very rapidly, and the result of the ten days' labour the men had accomplished with the saw floated away to the north-west in one large floe. By the end of January open water was within 6 or 7 miles of the *Discovery*, but the swell had now almost died away and the ice was quiet.

On the 14th of February two heavy charges were exploded to hasten the break-up of the ice round the ship, and these placed the *Discovery* once more in open water. Two days later a furious gale sprang up, and during its continuance the *Discovery* dragged her anchor and was for a time in a most precarious predicament. The good fortune which had attended her throughout did not desert her now, and a further supply of coal, which Scott managed to get from the relief ships, put her safety beyond doubt.

Sailing away towards the clear sea in the north, Scott steered a westerly course, passing through the Balleny group, and keeping on till the 156th meridian near Adele Land. Even now the discoveries of the *Discovery* were not at an end, for it was found that the coast-line shown on the chart east of that land is totally in error. No such land exists.

It was now found, however, that the supply of coal would not admit of further search, and so the ship turned back, reaching Auckland Island on the 15th of March. Here she was joined about a week later by the *Morning*, and on the 29th both ships were signalled off the heads at Lyttleton.

Thus ended the great Antarctic expedition, whose two years of work "represent an achievement unequalled, certainly unsurpassed, in the annals of polar exploration —Arctic or Antarctic."

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